TITLE 77: PUBLIC HEALTH
CHAPTER I: DEPARTMENT OF PUBLIC HEALTH
SUBCHAPTER r: WATER AND SEWAGE

PART 890
ILLINOIS PLUMBING CODE

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SUBPART A: DEFINITIONS AND GENERAL PROVISIONS

Section 890.120 Definitions

For the purpose of administering and enforcing this Part, the following terms, which consist of words or expressions that have a precise meaning in plumbing, shall have the meaning indicated. Refer to Appendix A for standards applicable to plumbing appurtenances and fixtures defined in this Section.

"Abut" or "Abutting": To border, to touch, to terminate at point of contact, adjacent.

"Accessible": Easily approached or entered with minor modifications, such as the removal of an access panel, door or similar obstruction (e.g., drywall, gypsum board, plasterboard, or paneling). Concrete, asphalt and ceramic tile are not considered accessible.

"Aesthetic Water Fixtures": Plumbing fixtures designed for aesthetics, including, but not limited to, decorative fountains, water walls, ornamental pools, artificial waterfalls or artificial streams ~~capable of producing aerosols~~.

~~"Air Break" (See "Air Gap".)~~

"Air Gap": The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank or plumbing fixture and the flood-level rim of the receptacle. An air gap in a drainage system is a piping arrangement in which a drain from a fixture, appliance or device discharges indirectly into another fixture, receptacle or interceptor at a point above the flood level rim. (See Appendix B.Illustrations A and B.)

"Anchor": An approved support for securing pipe, fixtures and equipment to walls, ceilings, floors or any other structural members.

"Antimicrobial": An additive or surface coating that prohibits the growth of bacteria or staphylococci.

"Anti-siphon Ballcock": A device consisting of a float valve with a flow-splitter to provide for tank and trap refill that has an integral vacuum breaker and that is used in conjunction with water closet flush tanks.

"Approved": Accepted or acceptable under an applicable specification stated or cited in this Part or accepted as suitable for the proposed use.

"Area Drain": A drain placed in the floor of a basement areaway, a depressed or basement entry way, a loading platform, or a paved driveway that cannot otherwise be drained.

"Aspirator": A device supplied with water under positive pressure that passes through an integral orifice, causing a partial vacuum and resulting in movement of fluid by siphonage.

~~"At Risk": Any person who is more susceptible than the general population to developing a drinking water associated illness because of factors including, but not limited to, age, health, medication, occupation, medical treatment, medical diagnosis or immunodeficiency.~~

"Atmospheric Vacuum Breaker": A device consisting of a soft disc, reaction cup, fully guided stem guide, air vent port, and air port shield or hood to prevent fouling of the vent port, used for protection against back siphonage.

"Authorities Having Jurisdiction": Any entity that the Illinois Plumbing License Law authorizes to enforce the Law.

"Back Pressure": A condition caused when a force is exerted and reverses the flow of gas, water or air in a direction opposite the intended normal direction of flow.

"Back Siphonage": A condition caused when a negative force or vacuum is exerted and reverses the flow of gas, water or air to a direction opposite the intended normal direction of flow.

"Back Siphonage Preventer": A device designed to prevent reverse flow in a water system, specifically back siphonage. The device should be used only where no back pressure may occur.

"Back Water Valve": A device or valve that is installed in a sanitary sewer, storm drain or storm sewer to prevent sewage or drainage from backing up.

"Backflow": The reversal of flow from that normally intended. Hydraulic conditions that cause backflow include back siphonage, back pressure and aspiration.

"Backflow Preventer": A device or an assembly used to prevent contamination of the potable water supply through an actual or potential cross-connection.

"Backflow Preventer, Double Check Valve Backflow Preventer Assembly" or "DCV": A plumbing appurtenance consisting of two internally force loaded, independently acting check valves that operate normally in the closed position; two tight-closing, resilient seated shut-off valves; and four test cocks.

"Backflow Preventer, Dual Check Valve Type with Atmospheric Vent": A plumbing appurtenance consisting of two internally force loaded, independently acting check valves, designed to operate normally in the closed position, separated by an intermediate chamber able to automatically vent to atmosphere.

"Backflow Preventer, Double Check Detector Backflow Prevention Assembly" or "DCDA": A plumbing appurtenance consisting of two internally force loaded, independently acting check valves, designed to operate normally in the closed position; two tight-closing, resilient seated shut-off valves; and four test cocks. The assembly must include a bypass line with a water meter and double check assembly.

"Backflow Preventer, Dual Check Valve Type": A plumbing appurtenance consisting of two internally force loaded, independently acting check valves, designed to operate normally in the closed position.

"Backflow Preventer, Dual Check Valves, Post-Mix Carbonated Beverage Dispenser Type": A plumbing appurtenance used to prevent carbonated water or carbon dioxide from backflow into a potable water system. The assembly consists of two internally force loaded, independently acting check valves, designed to operate normally in the closed position, residing in a common body.

"Backflow Preventer, Reduced Pressure Detector Backflow Prevention Assembly" or "RPDA": A plumbing appurtenance consisting of two internally force loaded, independently acting check valves, designed to operate normally in the closed position, separated by an intermediate zone that includes an internally force loaded hydraulic operated relief for venting to atmosphere, designed to operate normally in the open position, two tight-closing, resilient seated shut-off valves, four test cocks, and a metered reduced pressure backflow prevention assembly bypass.

"Backflow Preventer, Reduced Pressure Principle Backflow Prevention Assembly" or "RPZ": A plumbing appurtenance consisting of two internally force loaded, independently acting check valves, designed to operate normally in the closed position, separated by an intermediate zone that includes an internally force loaded, hydraulically operated relief for venting to atmosphere, designed to operate normally in the open position, two tight-closing resilient shut-off valves, and four test cocks.

"Ballcock": A device consisting of a float valve equipped with a flow-splitter to provide a tank and trap refill; used in conjunction with a flush tank on a water closet.

"Battery of Fixtures": Any group of two or more identical adjacent fixtures that discharge into a common horizontal waste or soil branch. (See Appendix B.Illustration C.)

~~"Blackwater": Water containing sewage, bodily fluids or other biological wastes from toilets, dishwashers, kitchen sinks, floor drains and utility sinks.~~

"Boiler Blow-Down": A controlled outlet on a boiler to permit emptying or discharging of sediment.

"Branch": Any part of the piping system other than a main, riser or stack. (See Appendix B.Illustration D.)

"Branch Interval": A length of soil or waste stack corresponding in general to a story height, but in no case less than 8 feet, within which the horizontal branches from one floor or story of a building are connected to the stack.

"Branch Vent": A horizontal vent connecting one or more individual vents with a vent stack or stack vent. (See Appendix B.Illustration E.)

"Building" or "Facility": Any structure used or intended for supporting or sheltering any use or occupancy. This may include, but is not limited to, mobile food units, prefabricated structures, and free standing plumbing appliances or appurtenances such as ice or water vending machines.

"Building Classification": The Department's designation of buildings into differing types based upon use or occupancy, such as residential buildings, dormitories, office buildings, food service establishments, etc.

"Building Drain": The part of the lowest horizontal piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building (house) sewer. The building drain's developed length terminates 5 feet outside the building foundation wall. (See Appendix B.Illustration F.)

"Building Sewer": The part of the horizontal piping of a drainage system that extends from the end of the building drain, receives the discharge of the building drain and conveys it to a public sanitary sewer or private sewage disposal system. The building sewer commences 5 feet outside the building foundation wall. (See Appendix B.Illustration F.)

"Building Storm Drain": The lowest horizontal portion of the storm drainage system used for conveying rain water, surface water, ground water, subsurface water, site drainage, condensate or cooling water inside the walls of a building to a point 5 feet beyond the outside of the building foundation wall.

"Building Sub-drain": The portion of a sanitary drainage system (see definition of "Drainage System") that cannot drain by gravity into the building drain. (See Appendix B.Illustration G.)

"Building Trap": A device, fitting, or assembly of fittings installed in a building drain to prevent circulation of air between the drainage system of the building and the building sewer.

"Certified Local Health Department": A local health department that meets the requirements set forth in Section 600.210 and Subparts C and D of the Certified Local Health Department Code (77 Ill. Adm. Code 600) and is so designated by the Department.

"Chemical Waste System": Piping that conveys corrosive or toxic chemical waste to the drainage system.

"Circuit Vent": A branch vent that serves two or more traps and extends from the front of the last fixture connection of a horizontal waste branch to the vent stack. This type of venting applies only to floor drains and floor outlet fixtures. (See Appendix B.Illustration H.)

"Clear Water" or "Clear Water Waste": Cooling water and condensate waste from refrigeration or air conditioning equipment, cooled condensate from steam heating systems, and seepage water.

"Closed Water System": A system that has a backflow device or assembly installed in the water supply system to contain backflow within the premises. Other plumbing appurtenances, such as a single check valve or a water pressure regulator installed in the water supply system, may also create a closed water system.

"Code": State or local statutes, ordinances, or administrative rules, e.g., requirements for plumbing methods, materials, etc. This Part)will be referenced in this rule as "Part". At the local level, a county, city, township, village or sanitary/water district shall adopt a plumbing ordinance or resolution and plumbing rules, and the ordinance or resolution and rule shall be filed with the clerk's office. A standard for plumbing contained in any local rule or ordinance that has not been officially adopted can be construed only as a recommended standard.

"Cold Water": Water that is ~~delivered at ambient temperatures or~~ has not passed through a water heater, has not been exposed to an external heat source, and has not been blended with tempered or hot water~~water above ambient temperatures.Water below 85 degrees Fahrenheit.~~

"Combination Fixture": A fixture combining two or more compartments or receptors.

"Combination Waste and Vent System": A system of waste piping with the horizontal wet venting of one or more floor drains by means of a common waste and vent pipe adequately sized to provide free movement of air above the flow line of the drain.

"Combined Building Sewer": A sewer that receives storm water and sewage.

"Common Vent": A vent connecting at the junction of two fixture drains and

serving as a vent for both fixtures. (See Appendix B.Illustration I.)

"Connection": The joining of two pieces of pipe, or pipes and fittings, valves or other appurtenances.

"Contaminant": Any solid, liquid or gaseous matter that, when present in a potable water supply distribution system, may cause the water to degrade so that water quality standards are not met or physical illness, injury or death to persons consuming the water could result.

"Contaminated Water": Water not suitable for human use or that does not meet the water quality standards of rules of the Illinois Pollution Control Board titled Primary Drinking Water Standards.

"Continuous Vent": A vertical vent that is a continuation of the drain to which it connects. The drain may be either vertical or horizontal. (See Appendix B.Illustration J.)

"Continuous Waste": A drain or waste line from two or more fixtures or sink compartments (of a single fixture), such as a combined three- compartment sink, connected to a single common trap.

"Critical Level": The mark on an atmospheric vacuum breaker established by the manufacturer and stamped "-CL-". This determines the minimum elevation above the flood-level rim or top of the fixture, whichever shall apply, at which the device shall be installed. When an atmospheric vacuum breaker does not bear a critical level marking, the bottom of the vacuum breaker shall constitute the critical level.

"Cross-Connection": Any actual or potential connection or arrangement between two otherwise separate piping systems, one containing potable water and the other containing fluids or gases of any kind that do not meet potable water quality standards, in which the non-potable substances in one system may flow into the potable water system or enter it through a means such as back pressure, back siphonage or aspiration.

"Cross-Connection Control Assembly": A tested and approved plumbing appurtenance, complete with shut-off valves, installed in a potable water line to prevent potable water from being mixed with any substance from a piping system containing non-potable substances, connected in any manner to the potable water supply.

"Cross-Connection Control by Containment": The installation of a backflow

prevention device or assembly on the service line to a premises to protect water quality.

"Cross-Connection Control by Isolation": The installation of a backflow prevention device or assembly at each actual or potential cross-connection within a premises to protect water quality.

"Cross-Connection Control" or "CCC": The identification and elimination of all unprotected connections between a potable water system and any other substance.

"Cross-Connection Control Device": A plumbing appurtenance installed in a potable water line to prevent any substance of any kind from being mixed.

"Cross-Connection Control Device Inspector": An individual who holds an Illinois Plumbing License and who has been certified in accordance with 35 Ill. Adm. Code 653.802 (Specific Conditions and Installation Procedures) of the Illinois Environmental Protection Agency's rules titled Design, Operation and Maintenance Criteria to inspect, test, maintain and repair cross-connection control devices and assemblies. The certification attests to an inspector's understanding of the principles of backflow and back siphonage, and the public health hazard presented by the improper installation of cross-connection control devices.

"Cross-Connection, Non-Pressure Type": A submerged inlet installation where a potable water pipe is connected or extended below the overflow rim of a receptacle, or an environment that contains a non-potable substance at atmospheric pressure.

"Cross-Connection, Pressure Type": An installation where a potable water pipe is connected to a closed vessel or piping system that contains a non-potable substance above atmospheric pressure.

"Dead End": Also known as “dead legs”. For the purposes of a water supply~~distribution~~ system, dead end means any pipe, tube, fixture or plumbing appurtenance~~A pipe~~ that is subject to periods of low flow or usage~~persistent low or no flow conditions~~ due to lack of use, construction or design~~, such as capped pipes, stagnant fire service lines, stagnant lawn irrigation service lines or unused fixtures. Also known as "dead legs".~~ For the purposes of a building drain system, dead end means a pipe that is terminated at a developed distance of 2 feet or more by means of a plug or other closed fitting, except piping serving as a cleanout extension to an accessible area. (See Appendix J.Illustration A~~B.Illustration K~~.)

"Department": The Illinois Department of Public Health.

"Developed Length": The length of a pipe measured along the center line of the pipe, including fittings.

"Diameter": The length of a straight line passing through the center of an object, e.g., a circle. (For the diameter of a pipe, see "Pipe Diameter".)

"Drain": Any pipe that carries waste water in a building drainage system. (See Appendix B.Illustration L.)

"Drain Laying": The laying and connecting of piping from 5 feet outside the foundation wall of a building to the public sanitary sewer system in the street or alley.

"Drainage Fixture Unit" or "DFU": The mathematical factor used by the plumbing industry to estimate the probable load on the drainage system caused by discharge from various plumbing fixtures. One drainage fixture unit is equivalent to 7½ gallons per minute or 1 cubic foot per minute.

"Drainage Piping" (See "Drainage System".)

"Drainage System": All piping within public or private premises that conveys sewage, rain or other liquid wastes to a point of disposal, but does not include the mains of a public sewer system or a private or public sewage treatment or disposal plant. The drainage system does not include the venting system. Drainage and venting are separate systems, although both are part of the overall plumbing system.

"Durham System": A soil or waste system where all piping is of threaded pipe, using recessed drainage fittings.

"Effective Opening": The minimum cross-sectional area at the point of water supply discharge, measured or expressed in terms of the diameter of a circle or, if the opening is not circular, the diameter of a circle of equivalent cross-sectional area. (This is applicable to sizing an air gap.)

“Emergency Repair”: Means any unscheduled repair to a damaged or leaking service line.

“Existing Plumbing” or “Existing Work”: A plumbing system or any part of a plumbing system that has been installed and inspected prior to April 1, 2020. ~~"Existing Plumbing" or "Existing Work": A plumbing system or any part of a plumbing system that has been installed prior to January 1, 2014.~~

"Extracted Mechanical Joint": A joint that is developed with a special drilling tool used to penetrate a copper pipe wall, after which two steel pins are extended from the drill. While rotating, the drill head is withdrawn from the pipe under power, raising an external collar from the hole in the pipe. The branch pipe is then brazed into the collared outlet.

"Fire Sprinkler System": A system of piping and appurtenances used to convey water or other fire extinguishing substances to fire sprinklers.

"Fixed": Stationary, immovable or immobile, as in a fixed air gap.

"Fixture Branch": A water supply pipe, soil pipe or waste pipe serving one or more fixtures.

"Fixture Carrier": A device designed to support an off-the-floor plumbing fixture.

"Fixture Drain": The vertical or horizontal outlet pipe from the trap of the fixture to the junction of that pipe with any other drain pipe. (See Appendix B.Illustration M.)

"Fixture Supply": A water supply pipe connecting the fixture to a branch or main water supply pipe.

"Fixture Supply Stop": A valve used to control water supply to an individual plumbing fixture, appurtenance or appliance.

"Float Valve": An automatic opening valve, operated by a float, used to control the water level in a vessel, tank or other container.

"Flood Level": The elevation at which a liquid will overflow the fixture or receptacle.

"Flood Level Rim": The top edge of a receptacle or fixture over which a liquid will flow when the receptacle or fixture is filled beyond its capacity (or flooded). "Overflow rim" is used interchangeably with flood level rim.

"Flooded": When the liquid in a fixture equals the maximum capacity of the fixture or when the level of the liquid in the fixture rises to the fixture's flood level rim. Any attempt to add liquid to a flooded fixture causes liquid to overflow.

"Flush Valve": A device for the purpose of flushing water closets and other similar fixtures.

"Flushometer Valve": A device actuated by hand, a photoelectric cell, or other electronic control that discharges a predetermined quantity of water to fixtures for flushing purposes. The valve is closed by direct water pressure.

"Food ~~Service~~ Establishment": An operation defined in 77 Ill. Adm. Code 750.100 (Food Code). ~~Any establishment selling or serving, to the public, food or liquid beverages that can be consumed on the premises.~~

"Grade": The fall, pitch or slope of a line of pipe in reference to a horizontal plane. In drainage, it is usually expressed as the fraction of an inch fall per foot length of pipe. This may also be expressed as a percentage. (See Appendix B. Illustration O.)

"Graywater": Untreated waste water that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources. Graywater includes waste water from bathtubs, showers, lavatories, clothes washers and laundry tubs. Also known as gray water, grey water, and greywater.

~~"Graywater Harvesting System": A plumbing system intended to collect, convey, store, treat and distribute graywater for approved uses.~~

"Grease Interceptor": A device used to separate and retain grease, oils and other floating matter from sewage waste while permitting the remaining flow to discharge into the drainage system. See "Interceptor".

"Group of Fixtures": Two or more fixtures adjacent to or near each other.

"Hangers": Devices for supporting and securing pipe, fixtures and equipment to walls, ceilings, floors or any other structural member.

~~"Harvested Water": A non-potable source of water that includes, but is not limited to, graywater, clearwater, rainwater, or reclaimed water.~~

~~"Harvested Water System": A plumbing system intended to collect, convey, store, treat and distribute harvested water for approved uses.~~

"High Hazard Substance": Any substance that, when present in the potable water system, can cause illness, injury or death if consumed or used.

"Historic Buildings": All buildings, parts of buildings, facilities or sites individually listed in or eligible for listing in the National Register of Historic Places; a "contributing" building or site in a National Register Historic District as

determined by the Illinois Historic Preservation Agency (IHPA) or as determined by a "Certified Local Government" designated by IHPA; a building or site designated as a historic or architectural landmark by a local Landmarks Commission or local Historic Preservation Commission; or buildings that undergo historic reconstruction.

"Horizontal Branch": A drain pipe extending laterally from a soil or waste stack or building drain, with or without vertical sections or branches, that receives the discharge from one or more fixture drains and conducts the discharge to the soil or waste stack or to the building drain. (See Appendix B.Illustration P.)

"Horizontal Pipe": Any pipe or fitting that makes an angle of less than 45 degrees with the horizontal.

"Hose": A flexible tube for conveying fluids (as from a faucet or hydrant).

"Hose Bibb": A faucet to which a hose may be attached.

"Hot Water": Water at a temperature of not less than 124~~160~~120 degrees Fahrenheit.

"House Drain" (See "Building Drain".)

"House Trap" (See "Building Trap".)

"Indirect Waste": A pipe that does not connect directly with the drainage system but conveys liquid waste by discharging through an air gap into the drainage system.

"Individual Dry Vent": A pipe installed to vent a single fixture trap that connects with the vent system above the fixture served, or that terminates in the outside atmosphere. (See Appendix B.Illustration CC.)

~~"Individual Water System": A piping system that supplies potable water for a single family dwelling and includes the water service line and all potable water piping.~~

"Industrial Wastes": Liquid wastes resulting from the processes employed in industrial and commercial establishments.

"Insanitary": Contaminated. Not hygienic or sufficiently unclean to endanger health.

"Interceptor": A device designed and installed to separate and retain hazardous or undesirable matter from normal waste and to permit normal sewage or liquid waste to discharge into the drainage system. Interceptors may be designed to remove gas, oil, sand, grit and grease. "Separator" is also commonly used to mean an "interceptor."

"Invert": The lowest part of the internal cross-section of a pipe or conduit.

"Island Fixture Vent": A vent in which the vent pipe rises as near as possible to or above the highest water level in the fixture vented and then turns down before rising to connect to the vent system 6 inches above the flood level rim or terminating to the atmosphere. (See Section 890.1600, "Special Venting for Island Fixtures".)

"Joint": The juncture of two pipes, a pipe and a fitting, or two fittings.

"Kiosk": A freestanding place of employment that has five or fewer employees at any time, located inside or outside a building.

"Kitchen or Bar Sink Faucet": A faucet that discharges into a kitchen or bar sink in domestic or commercial installations. Supply fittings that discharge into other types of sinks, including clinic sinks, floor sinks, service sinks and laundry trays, are not included.

"Labeled": An indication that an agency approved by the Department or that is an ANSI-accredited certification program has certified the plumbing material to be in compliance with applicable standards in accordance with this Part.

"Lavatory Faucet": A faucet that discharges into a lavatory basin in a domestic or commercial installation.

"Lawn Sprinkler System": Any underground irrigation system of lawn, shrubbery and other vegetation from any potable water sources; and from any water sources, whether or not potable. Does not include an irrigation system used primarily for agricultural purposes. (Section 2 of the Illinois Plumbing License Law)

"Lead Free": When used with respect to solder and flux, refers to products containing not more than 0.2 percent lead and, when used with respect to wetted surfaces of pipe, pipe fittings, and fixtures, refers to materials containing no more than a weighted average of 0.25 percent lead. Exemptions include *pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for non-potable services, such as manufacturing, industrial*

processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, service saddles, or water distribution main gate valves that are 2 inches in diameter or larger. (Section 1417(a)(4)(A) and (B) of the Safe Drinking Water Act)

"Length of Pipe": The overall distance measured along the center line of a pipe. See "Developed Length".

"Line Valve": A valve in the water supply distribution system, except those immediately controlling one fixture supply.

"Liquid Waste": The discharge from any fixture, appliance or appurtenance, in connection with a plumbing system that does not receive fecal matter.

"Load Factor": The percentage of the total connected fixture unit flow rate that is likely to occur at any point in the drainage system. The load factor varies with the type of occupancy, the total flow above the point being considered, and probability of simultaneous use. Load factor represents the ratio of the probable load to the potential load.

"Local Ventilating Pipe": A pipe on the fixture side of the trap through which vapors or gases or foul air is removed from a room or fixture to the outside atmosphere. Certain special apparatus, such as sterilizers, are sometimes provided with a local ventilating pipe to remove vapors. A local ventilating pipe is not connected into the vent piping of the drainage system.

"Loop Vent": A circuit vent that loops back to connect with a stack vent instead of a vent stack. Its use is limited to floor drains and floor outlet fixtures.

"Low Hazard Substance": Any substance that, when present in the potable water system, may cause the water to be discolored or have an unusual odor or an unpleasant taste, but will not cause illness, injury or death if consumed.

"Main": The principal artery of a piping system to which branches may be connected.

"Main Vent": The principal artery of the venting system to which vent branches may be connected. A main vent may be a vent stack or stack vent. (See Appendix B.Illustration Q.)

"Maximum Demand": In plumbing, the greatest requirement of flow of either water supply or waste discharge from the fixtures of a building, or any specific

segment of the building fixtures.

"Manhole": An opening constructed to permit a person to gain access to an enclosed space. In a sewer or any portion of the plumbing system, it is used to eliminate restriction of flow at changes of direction or junctions and to facilitate cleaning.

"Metering Faucet": A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

"Minor Repairs": Repairs that do not require changes in the piping to or from plumbing fixtures or involve the removal, replacement, installation or reinstallation of any pipe or plumbing fixture.

~~"Mixed Water": Water at a temperature of not less than 121 degrees Fahrenheit and not more than 159 degrees Fahrenheit.~~

"Multi-Person~~person~~ Showers": Shower compartments designed and intended for use by two or more persons simultaneously.

"New Plumbing" or "New Work": Any plumbing system or part of a plumbing system, or any addition to or alteration of an existing system, being installed or recently completed.

"Non-Potable Water": Water that does not meet drinking water quality standards specified in the Pollution Control Board's rules titled Primary Drinking Water Standards, and is not suitable for human consumption or culinary use, or is of unknown quality.

"Non-Toxic Transfer Fluids": Fluids having no normal detrimental effect on humans.

"Occupancy": The purpose for which a building is currently used. In the case of a single family residence, occupancy shall mean taking possession of and living in the premises as one's sole and exclusive residence for a period of not less than six months after the completion of construction or issuance of a Certificate of Occupancy by a unit of local government.

"Offset": A combination of elbows or bends that brings one section of pipe into a line parallel with another section.

"Open Plumbing": Installation of plumbing so that traps and drainage pipes and

their surroundings beneath fixtures are ventilated, accessible and open to inspection. Open plumbing is also referred to as an exposed plumbing installation.

"Opportunistic Pathogens": Organisms capable of causing disease when a host's resistance is lowered due to factors including, but not limited to, age, health, medication, occupation, medical treatment, medical diagnosis or immunodeficiency. Opportunistic pathogens include, but are not limited to, Legionella pneumophila, Pseudomonas aeruginosa, Nontuberculous mycobacteria and Staphyloccocus aureus.

"Overflow Rim": The top edge of a receptacle or fixture over which a liquid will flow when the receptacle or fixture is filled beyond its capacity (or flooded). "Flood level rim" is used interchangeably with overflow rim.

"Part": This Illinois Plumbing Code in its entirety or any emergency rule that the Department adopts, during the effective period of the emergency rule.

"Peppermint Oil": A pungent, aromatic mint oil sometimes used in testing a drain, waste and vent system by means of a "Peppermint Test".

"Peppermint Test": A test for leakage using peppermint oil and hot water as the media, and the sense of smell to determine any leak; also known as a "scent test" (see Section 890.1930(e)).

"Pet Cock": A small faucet or valve used to drain water, steam or air.

"pH": An expression of acidity and alkalinity on a scale from zero to 14, with 7.0 being neutral. Numbers less than 7.0 indicate increasing acidity as the number decreases, and numbers greater than 7.0 indicate increasing alkalinity as the number increases.

"Pipe": A cylindrical conduit or conductor, the wall thickness of which is sufficient to receive a standard pipe thread.

"Pipe Diameter": The distance measured from the inside wall of a pipe (passing through the center of the pipe) to the opposite inside wall. Any referenced pipe diameter or pipe size shall mean the nominal size or diameter.

"Pipefitting": The installation of piping other than piping that is defined as plumbing.

"Pipe Increments": Increasing or decreasing pipe size by a given number − the

following examples constitute one pipe size change: 1, 1¼, 1½, 2, 2½, 3, 3½, 4, 4½, 5.

"Piping": An assembly of pipes or conduit with fittings of compatible design. This term is commonly interchanged with "Pipe".

"Pitch": Synonymous with "grade". (See "Grade".)

"Plumbing": See the Illinois Plumbing License Law.

"Plumbing Appliance" or "Appliance": A special class of plumbing fixture intended to perform a special function. This term includes water heaters, water coolers, drinking fountains, and heat exchanger and water treatment equipment other than water softeners.

"Plumbing Appurtenance": An accessory or device used in a plumbing system which demands no additional water supply, nor adds any discharge load to a fixture or the drainage system. Plumbing appurtenances include instruments, gauges, relief valves, limit switches, backflow assemblies, solenoid valves and devices between solenoid valves.

"Plumbing Fixtures~~Fixture~~": Approved, *Installed receptacles, devices or appliances that are supplied with water or that receive or discharge liquids or liquid-borne wastes, with or without discharge into the drainage system with which they may be directly or indirectly connected.*~~Approved, installed receptacles, devices or appliances that are supplied with water or that receive or discharge liquid or liquid-borne waste, with or without discharge of the waste into the drainage system to which they may be directly or indirectly connected; an installed appurtenance to the potable water supply system that makes available intended potable water, or a receptor that receives and discharges liquids or liquid-borne waste either directly or indirectly into the drainage system; or a permanent appendage usually designed as a receptacle and intended to receive or discharge liquid or liquid-borne waste to a drainage system.~~ Industrial or commercial tanks, vats, and similar processing equipment are not plumbing fixtures, but they may be connected to, or discharged into, approved traps or plumbing fixtures. (Section 2 of the Illinois Plumbing License Law)

"Plumbing Inspector": An employee or agent of State or local government who holds a valid Illinois Plumbing License and is authorized to inspect plumbing.

"Plumbing System": See the Illinois Plumbing License Law.

"Pop-Up Waste": A waste outlet into which a sliding metal or plastic stopper is

fitted, and the stopper can be raised to drain the waste. A common pop-up waste used for lavatories has a lever that passes out the side of the drain fitting and connects to a lift rod that extends on top of the lavatory or sink. The rod is lifted to lower the stopper, or depressed to raise the stopper and drain the lavatory.

"Potable Water": Water that meets drinking water quality standards specified in the Pollution Control Board's rules titled Primary Drinking Water Standards and is suitable for human consumption or culinary use.

"Pre-Rinse Spray Valve": A hand-held device for use with commercial dishwashing and ware-washing equipment that sprays water on dishes, flatware and other food service items for the purpose of removing food residue before cleaning and sanitizing the items.

"Pressure Gradient Monitor": A device used to protect the quality of water, failsafe by design, securing the potable water system by isolating a heat exchanger when the pressure between the potable water and the heat exchange medium drops below a preset level.

"Pressure Relief Valve" (See "Relief Valves".)

"Private" or "Private Use": In the classification of plumbing fixtures, private applies to fixtures in residences, apartments and private bathrooms of hotels or motels where the fixtures are intended for the use of a single family or an individual; handwashing stations (lavatories) within residents' rooms, within shared or common resident restrooms, or designated for staff use only in hospitals/long-term care units/mental health facilities, and hand-washing stations where food is being prepared.

"Private Sewage Disposal System": Any sewage handling or treatment facility receiving domestic sewage from fewer than 15 people or population equivalent and having a ground surface discharge or any sewage handling or treatment facility receiving domestic sewage and having no ground surface discharge. Refer to the Private Sewage Disposal Licensing Act and Private Sewage Disposal Code.

"Private Sewer": A sewer privately owned and not directly controlled by a public authority.

"Private Water Supply": Any potable water supply that provides water for drinking, culinary and sanitary purposes and serves an owner-occupied single family dwelling.

"Proper" or "Properly": To be accurate or meeting the standard of competence for the given situation and properties of the materials involved based upon the standards in this Part and manufacturer's recommendations.

"p.s.i"; "P.S.I."; or "psi": Pounds per square inch gauge of pressure.

"Public" or "Public Use": Any installation or use of plumbing fixtures or facilities except those in residences, apartments or private bathrooms of hotels/motels where the fixtures are intended for the personal use of an individual or single family only.

"Public Area": An area within a building accessible to all persons, including, but not limited to, mercantile units, private clubs and membership organizations.

"Public Sanitary Sewer": A sewer that is controlled by a public authority and is intended to receive and transport sewage.

"Public Water System": A system for providing piped water to the public for human consumption, if the system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. The term public water system includes: any collection, treatment, storage and distribution facility under the control of the operator of the system and used primarily in connection with the system; and any collection or pretreatment storage facilities not under control of the operator of the system that are used primarily in connection with that system. The public water system ends at and with the water service connection.

"Quarter Bend": A fitting changing direction of 90 degrees .

"Quick Closing Valve": A valve or faucet that closes automatically when released or one that has fast action closing.

~~"Rainwater": Water from natural precipitation collected from roof surfaces or other manmade, above-ground collection surfaces.~~

~~"Rainwater Harvesting System": A plumbing system intended to collect, convey, store, treat and distribute rainwater for use.~~

"Readily Accessible": Direct access without the necessity of removing or moving any panel, door or similar obstruction.

"Receptor": Devices or fixtures that receive the discharge from indirect waste pipes.

~~"Reclaimed Water": Water resulting from the treatment of wastewater, as defined by this Part, that receives a level of treatment consistent with its intended use.~~

"Reduced Pressure Zone Principle Backflow Preventer Assembly" or "RPZ" (See "Backflow Preventer, Reduced Pressure Principle Backflow Preventer Assembly" or "RPZ".)

"Relief Valves":

Temperature relief valve − A valve designed to release water to the atmosphere at a predetermined temperature setting.

Pressure relief valve − A valve designed to relieve excessive pressure to the atmosphere at a predetermined setting.

Temperature and pressure relief valve or pressure-temperature relief valve − A valve incorporating a temperature relief valve and a pressure relief valve in one unit.

Vacuum relief valve − A valve that admits air to the system when the system is attempting to reduce its pressure to less than atmospheric.

"Relief Vent": A vent that permits circulation of air in or between drainage and vent systems. (See Appendix B.Illustration S.)

"Restroom": As a minimum, will consist of one water closet and one lavatory, all located in the same room.

"Return Offset": A double offset installed so as to return the pipe to its original alignment.

"Revent Pipe" (See "Individual Dry Vent".) (See Appendix B.Illustration U.)

"Rim": An unobstructed open edge of a fixture.

"Riser": A water supply pipe that extends vertically one full story or more to convey water to branches or to a group of fixtures.

"Roughing-In": The installation of all parts of the plumbing system that can be completed prior to the installation of fixtures. This includes drainage, water supply, and vent piping, and the necessary fixture supports.

"Safe Pan": An appurtenance installed beneath piping or a fixture to collect and drain any leakage. Safe pans are generally found in food preparation/storage areas and sterile areas of health care facilities that have overhead, exposed drainage piping. Safe pans are not intended to receive discharges from temperature and pressure relief valves.

"Safe Waste" (See "Indirect Waste".)

"Sanitary Sewer": A public or private sewer into which building sewers are connected.

"Sanitary Waste": Sewage containing excrement and liquid wastes or ordinary wastes derived from a plumbing system.

"Self Closing Faucet": A faucet that closes itself after the actuation or control mechanism is deactivated. The actuation or control mechanism can be mechanical or electronic.

"Semi-Private Water System": A water supply that is not a public water system and that serves a segment of the public other than an owner-occupied single family dwelling. (See Section 19 of the Illinois Groundwater Protection Act.)

"Separator" (See "Interceptor".)

"Service Connection": The tap at the water main and any pipe to the property line.

"Service Line": A conduit consisting of pipes, tubes, and any plumbing appurtenances necessary to convey potable water from the source of a private water supply on the premises or from the main in the street, alley or at the curb to the water distribution pipe in any building or exterior plumbing fixtures~~Piping, tubing, and necessary appurtenances installed on any conduit from the source of a private water supply on the premises or from the main in the street, alley or at the curb to, any building or exterior plumbing fixtures~~.

"Sewage": Any waste containing animal, human or vegetable matter in suspension or solution, and may include liquids containing chemicals in solution.

"Sewage Ejector": A device for lifting sewage by pumping means.

"Sillcock": A type of lawn faucet. A faucet used on the outside of a building to which a garden hose may be attached.

"Single Family Dwelling": Any building consisting of one dwelling unit that is designed for residential use by one family. Does not include group homes or dwellings operated by human service providers and occupied by unrelated or unassociated persons.

"Size of Pipe or Tubing": Pipe is generally sized according to the approximate dimension of its bore or inside diameter, whereas tubing is usually sized by measuring its outside diameter. Both are expressed in inches and fractions of inches. For purposes of this Part, any referenced pipe or tubing size shall mean the nominal size or diameter as designated by the commercial manufacturer.

"Slope": Synonymous with "grade." (See "Grade".)

"Soil Pipe": Any pipe that conveys the discharge of water closets or fixtures having similar functions, with or without the discharge from other fixtures, to the building drain.

"Special Waste Pipe": Piping that conveys special waste. Piping that has been designed and manufactured of special material to handle special waste such as acids.

"Special Wastes": Wastes that require special handling and treatment before they may be discharged into the plumbing system. (See Subpart H.)

~~"Sprinkler System":~~

~~Fire sprinkler system = a system of piping and necessary appurtenances for conveying water or other extinguishing substances to outlets for the purpose of fire extinguishment.~~

~~Lawn sprinkler system = a system of piping installed for irrigation purposes.~~

"Stack": Any vertical line of soil, waste or vent piping.

"Stack Vent": The extension of a soil or waste stack above the highest horizontal drain connected to the stack. (See Appendix B.Illustration V.)

"Stack Venting": A method of venting a fixture or fixtures through the soil or waste stack.

"Sterilizer":

Boiling Type Sterilizer − a fixture (non-pressure type) used for boiling instruments, utensils or other equipment (used for sterilization). Some devices are portable; others are connected to the plumbing system.

Instruments Sterilizer − a device for the sterilization of various instruments.

Pressure (Autoclave) Sterilizer − a fixture (pressure vessel) designed to use steam under pressure for sterilizing.

Pressure Instrument Washer-Sterilizer − a fixture (pressure vessel) designed to both wash and sterilize instruments during the operating cycle of the fixture.

Sterilizer Vent − a separate pipe or stack that is trapped below the lowest exhaust and indirectly connected to the building drainage systems and that receives the vapors from non-pressure sterilizers, or the exhaust vapors from pressure sterilizers, and conducts the vapors directly to the outside atmosphere. Sometimes called a vapor, steam, atmospheric or exhaust vent.

Water Sterilizer − a device for sterilizing water and storing sterile water.

"Storm Sewer": A sewer that is used for conveying rainwater,~~rain water,~~ surface water, ground water, subsurface water, site drainage, condensate, clearwater, cooling water or other similar liquid waste (excluding sewage) from the building storm drain to an approved point of discharge.

~~"Stormwater": Rainwater collected at grade or below-grade surfaces.~~

"Sub-soil Drain": A drain that collects sub-soil drainage and conveys it to a place of disposal.

"Sub-soil Drainage": Liquid waste, such as run-off water, seepage water or clear water waste, free of fecal matter and graywater.

"Sump": A receptacle that receives sanitary or storm waste, located below the normal grade level of the gravity system and emptied by pumping or gravity.

"Sump Pump": A pump for the removal of storm, subsoil and clear water waste drainage from a sump.

"Supports": A hanger, anchor or other device for securing or holding pipe

fixtures to walls, ceilings, floors or structural members.

"Swimming Pool": See the Swimming Facility Act for minimum sanitary requirements for the design and operation of swimming facilities.

"Tempered Water": A mixture of cold and hot water to produce warm water suitable for use~~Water ranging in temperature from 85 degrees Fahrenheit to, but not including, 120 degrees Fahrenheit~~.

"Tepid Water": Water ranging from 60 degrees Fahrenheit to 100 degrees Fahrenheit used for emergency plumbing fixtures such as eye wash stations and emergency body showers per ANSI Z358.1.

"Terminal Heating Device": A device located within the environment to be conditioned that directly transfers its heating energy by radiation or forced or gravity convection.

"Test Cock": A small cock, faucet or valve set in a water pipe, pump, backflow device or water jacket and used to drain water or test pressure.

"Toxic": Not fit for human consumption; poisonous.

"Toxic Transfer Fluids": Sanitary waste, graywater, or mixtures containing harmful substances, including, but not limited to, ethylene glycol, hydrocarbons, oils, ammonia refrigerants, and hydrazine.

"Trap": A fitting or device designed and constructed to provide, when properly vented, a liquid seal that will prevent the back passage of air without materially affecting the flow of sewage or waste water through it. (See Appendix B.Illustration W.)

"Trap Arm": The portion of a fixture drain between a trap and its vent.

"Trap Primer": A device or system of piping to maintain a water seal in a trap.

"Trap Seal": The vertical distance between the crown weir and the top of the dip of the trap. (See Appendix B.Illustration W.)

"Tube": A cylindrical conduit or conductor, the wall thickness of which is less than that needed to receive a standard pipe thread. Compare with "Pipe".

"Tuberculation": A condition that develops on the interior of pipe due to corrosion, resulting in the creation of small, hemispherical lumps (tubercules) on

the inner walls of the pipe.

"Union": A coupling device used to join two pipes end-to-end, but allow them to be disconnected and re-connected. This joint can be assembled and disassembled without removing any adjacent pipes.

"Unisex Restroom": A restroom shared by males and females and having only one water closet and one lavatory located in the same room. In addition, a single urinal may be installed.

"Vacuum": A pressure less than atmospheric pressure, sometimes referred to as suction. It is usually measured in inches of mercury below atmospheric pressure, such as 10 or 20 inches of mercury. To vacuum also means to siphon.

"Vacuum Breaker": A device that prevents the creation of a vacuum by admitting air at atmospheric pressure, used to prevent back siphonage.

"Vacuum Breaker, Hose Type" or "HVB": A back siphonage prevention device designed for hose connections that are not under continuous pressure, and meeting the requirements of ASSE 1011.

"Vacuum Relief Valve": A device to prevent excessive vacuum in a pressure vessel.

"Vent Pipe": A pipe in a plumbing system that is used to equalize pressure and ventilate the plumbing system. Also see the definition of "Vent System".

"Vent Stack": A vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system and terminating to the atmosphere or in the stack vent.

"Vent System": The pipe or pipes installed to provide a flow of air to or from a drainage system and to provide a circulation of air within the system to protect trap seals from siphonage and back pressure.

"Venturi": A short section in a pipe with a reduced diameter or cross-sectional area (forming a throat) compared to the larger ends, thereby increasing the velocity of the fluid passing through the throat and decreasing the pressure at the throat. This decrease in pressure allows another fluid to be drawn into the venturi.

"Vertical Pipe": Any pipe or fitting that makes an angle of 45 degrees or less with the vertical.

"Wall Hung Water Closet": A water closet installed so that no part of the water closet touches the floor.

"Waste" (See "Sanitary Waste".)

"Waste Pipe": A pipe that conveys only waste material.

~~"Wastewater": Sewage, industrial waste, or other waste, or any combination of these.~~

"Water Closet": A fixture with a water-containing receptor that receives liquid and solid body waste and, on actuation, conveys the waste through an exposed integral trap into a drainage system. Also referred to as a toilet.

"Water Distribution Pipe": A pipe within the building or on the premises that conveys water from the water service to the point of usage.

"Water Hammer": A concussion or sound of concussion of moving water against the sides of a containing pipe or vessel due to a sudden stoppage of flow. A pressure that results from a sudden deceleration of flow of water in a closed conduit. It is also called hydraulic shock.

"Water Hammer Arrester": A device to absorb hydraulic shock.

"Water Heater": An appliance for supplying hot water for domestic or commercial purposes. It may be used for space heating if the water temperature does not exceed 150 degrees Fahrenheit.

"Water Main": A water supply pipe for public or community use.

"Water Management Plan": A plan to reduce the risk of the growth and spread of opportunistic pathogens in building water systems.

"Water Outlet": An opening through which water is supplied to a fixture, device, appliance or appurtenance, or into the atmosphere.

"Water Riser Pipe" (See "Riser".)

"Water Service" or "Water Service Pipe": See ("Service Line")~~The pipe from the water main or source of potable water supply to the water distribution pipe of the building served~~.

"Water Softening Equipment": Equipment installed for the sole purpose of

removing calcium, magnesium and other cations from hard water. Water softening equipment does not include reverse osmosis filtration, multimedia filtration, or other plumbing appliances or appurtenances~~water treatment technologies~~ installed to control opportunistic pathogens or chemical hazards.

"Water Supply Fixture Unit" or "WSFU": The mathematical factor used by the plumbing industry to estimate the probable demand on the water supply system (considering the volume, duration of flow, and intervals between operations) caused by various plumbing fixtures.

"Water Supply Stub": A vertical pipe less than one story in height supplying one or more fixtures.

"Water Supply System": The water service pipe, the water distribution pipe, and all fittings, valves and appurtenances in or associated with the building or premises being served.

~~"Water Treatment Equipment" or "Water Treatment Technologies": Any device intended to alter biological, physical or chemical characteristics of water to make the water more acceptable for a proposed use, drinking, industrial process, cooling, irrigation, or any other purpose.~~

"Wet Vent": A vent that also serves as a drain. (See Appendix B.Illustration Y.)

"Yard Hydrant": A valve or faucet for drawing water from a buried pipe that includes a stand pipe with a valve or faucet at the upper end and a threaded valve outlet to which a hose may be attached.

"Yoke Vent": A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stack. (See Appendix B.Illustration Z.)

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.130 Incorporated and Referenced Materials

a) The following State and federal statutes and State administrative rules are referenced in this Part:

1) Illinois Plumbing License Law [225 ILCS 320]

2) Private Sewage Disposal Licensing Act [225 ILCS 225]

3) Illinois Groundwater Protection Act [415 ILCS 55]

4) Swimming Facility Act [210 ILCS 125]

5) Illinois Safe Bottled Water Act [410 ILCS 655]

6) Illinois Bottled Water Act [815 ILCS 310]

7) Bed and Breakfast Act [50 ILCS 820]

8) Hazardous Substances Act (15 USC 1263)

9) Primary Drinking Water Standards (35 Ill. Adm. Code 611)

10) ~~Design, Operation and Maintenance Criteria (~~Specific Conditions and Installation Procedures~~)~~ (35 Ill. Adm. Code 653.802)

11) Private Sewage Disposal Code (77 Ill. Adm. Code 905)

12) Illinois Accessibility Code (71 Ill. Adm. Code 400)

13) Food Service Sanitation Code (77 Ill. Adm. Code 750)

14) Youth Camp Code (77 Ill. Adm. Code 810)

15) Recreational Area Code (77 Ill. Adm. Code 800)

16) Boiler and Pressure Vessel Safety (41 Ill. Adm. Code 120)

17) Drinking Water Systems Code (77 Ill. Adm. Code 900)

18) Water Quality Standards (35 Ill. Adm. Code 302)

19) Energy Policy Act of 1992 (PL 201-486)

20) Lawn Irrigation Contractor and Lawn Sprinkler System Registration Code (77 Ill. Adm. Code 892)

21) Safe Drinking Water Act (42 USC 1417)

22) Certification and Operation of Environmental Laboratories (77 Ill. Adm. Code 465)

23) Swimming Facility Code (77 Ill. Adm. Code 820)

24) Environmental Protection Act [415 ILCS 5]

25) Permits (35 Ill. Adm. Code 602)

26) Ambulatory Surgical Treatment Center Act [210 ILCS 5]

27) Hospital Licensing Act [210 ILCS 85]

28) Nursing Home Care Act [210 ILCS 45]

29) Assisted Living and Shared Housing Act [210 ILCS 9]

30) Community Mental Health Act [405 ILCS 20]

31) Certified Local Health Department Code (77 Ill. Adm. Code 600)

32) Lead Poisoning Prevention Act [415 ILCS 45]

33) Lead Poisoning Prevention Code (77 Ill Adm. Code 845)

b) See Appendix A for approved materials and standards that are incorporated by reference in this Part.

c) The following nationally recognized standards and federal regulations are incorporated by reference in this Part (see also Appendix A):

1) 2015~~2011~~ American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Handbook – HVAC Applications

2) 2016~~2012~~ American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Handbook – HVAC Systems and Equipment

3) January 20, 2004, Department of Energy: Conservation Program for Consumer Products (10 CFR 430)

d) All incorporations by reference of federal regulations and the standards of nationally recognized organizations in this Part refer to the regulations or standards on the date specified and do not include any amendments or editions subsequent to the date specified.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

SUBPART B: PLUMBING MATERIALS

Section 890.210 Materials

All materials, piping, fittings, appliances, appurtenances, faucets, fixture fittings, fixtures and devices used in all plumbing systems shall be approved by the Department, in accordance with the following criteria:

a) Compliance with the requirements of this Part.

b) Compliance with the applicable standard (see Appendix A: Table A).

c) Labeled by an agency that is approved by the Department or is an ANSI-accredited certification program (see Appendix A: Table A).

1) Labeling indicates that the agency certifies the plumbing material to be in compliance with applicable standards.

2) Labeling includes the manufacturer's identification of material. Each length of pipe, each pipe fitting, trap, fixture, device and appurtenance used in a plumbing system shall have cast, stamped or indelibly marked on it the maker's mark or name, the weight, type, class of product and the standard that applies.

d) Testing. The approved agency has tested a representative sample of the material or piping being labeled to the relevant standard. The approved agency maintains a record of all tests performed, which provides sufficient detail to verify compliance with the testing standard.

e) Inspection and identification. The approved agency periodically performs inspections, which shall include in-plant inspections during the manufacturing process, to verify that the product being manufactured meets the applicable standard.

f) Independent. The approved agency discloses all possible conflicts of interest.

g) Equipment. An approved agency has necessary equipment to perform all required tests. The equipment shall be calibrated according to manufacturer's recommendations.

h) Personnel. An approved agency employs personnel experienced and educated in conducting, supervising and evaluating tests.

i) Manufacturer's Identification of Material. The approved agency ensures that each length of pipe, each pipe fitting, trap, fixture, device and appurtenance used in a plumbing system has cast, stamped or indelibly marked on it the maker's mark or name, weight, type, class of product and the standard that applies.

j) Materials that do not meet the applicable standards in Appendix A will be evaluated by the Department upon receipt of plans, specifications, independent testing data and other such records required by the Department and may receive approval for use pursuant to Section 890.1940, with the written consent of the Department.

k) All plumbing materials used in water distribution systems to provide water for human consumption shall be lead free.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.230 Safe Pan Material and Construction

a) Material. Safe pans shall be made only of ~~lead,~~ copper, aluminum, galvanized steel, stainless steel, ABS, PVC or fiberglass material.

~~1)~~ ~~Lead sheets for safe pans shall weigh at least 4 pounds per square foot.~~

1~~2~~) Copper sheets for safe pans shall weigh at least 12 ounces per square foot.

2~~3~~) Aluminum, galvanized steel and stainless steel safe pans shall be of at least 24 gauge material.

3~~4~~) ABS or PVC safe pans or liners shall be 30 mil or 40 mil.

4~~5~~) Fiberglass for safe pans or liners shall be equally durable to the ABS and PVC material described in subsection (a)(3) ~~of this Section~~.

b) Construction. All safe pans shall be constructed with preformed dam corners, shall be watertight, adequately reinforced and provided with a drain opening designed to make a watertight joint. ABS and PVC safe pans and liners shall be solvent welded together with the proper cement.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

SUBPART C: JOINTS AND CONNECTIONS

Section 890.320 Types of Joints

~~a)~~ ~~Caulked joints. Caulked joints for (drain, waste and vent systems only) cast iron hub-and-spigot pipe shall be firmly packed with oakum or hemp and filled with molten lead at least 1 inch deep and be firmly caulked not to extend more than ⅛ inch below the rim of the hub. Paint, varnish, or other coatings shall not be permitted on the jointing material until after a plumbing inspector has been given the opportunity to test and approve or disapprove the joint. (See Appendix C.Illustration A.)~~

a~~b~~) Threaded/Screwed Joints. Threaded joints shall conform to American National Taper Pipe Thread, ASME B.1.20.1 (General Purpose). All burrs shall be removed; pipe ends shall be reamed or filed to size of the bore, and all chips shall be removed. Pipe joints compound shall be insoluble in water and non-toxic.

~~c)~~ ~~Wiped Joints. Joints in lead pipe or fittings, or between lead pipe fittings and brass or copper pipe ferrules, solder nipples, or traps shall be full-wiped joints. Wiped joints shall have exposed surface on each side of the joint at least ¾ inch and at least as thick as the material being joined. Wall or floor flange lead-wiped joints shall be made by using a lead ring or flange placed behind the joints at the wall or floor. Joints between lead pipe and cast iron, steel or wrought iron shall be made by means of a caulking ferrule, soldering nipple or bushing.~~

b~~d~~) Soldered Joints. The surface to be soldered shall be cleaned bright. The joints shall be properly fluxed (lead free) and made with approved lead free solder conforming to ASTM Standard B32. Joints in copper water tubing shall be made with approved cast bronze or wrought copper pressure fittings, properly soldered together. All solders or flux containing more than 0.2 percent lead shall bear a warning label that states that the solder or flux is not approved for private or potable water use as required by Section 4 of the federal Hazardous Substances Act (15 USC 1263). Use of this product in making joints or fittings in any private or public potable water system is prohibited. No part of a drain, waste and vent (DWV) system shall be joined or fitted with a solder or flux containing more than 0.2 percent lead.

c~~e~~) Flared Joints. Flared joints for plastic pipe and tubing and soft copper water tubing shall be made with approved fittings. The tubing shall be expanded with a proper flaring tool. (See Appendix C.Illustration B.)

d~~f~~) Hot-Poured Joints. Hot-poured compound for clay or concrete sewer pipe shall not be water absorbent and when poured against a dry surface shall have a bond

of at least 100 pounds per square inch (psi). All surfaces of the joint shall be cleaned and dried before pouring. If wet surfaces are unavoidable, a primer such as oil or tar shall be applied. The compound shall not soften sufficiently to destroy effectiveness of the joint when subjected to a temperature of 160 degrees Fahrenheit, and not be soluble in any of the waste carried by the drainage system. Approximately 25 percent of the joint space at the base of the socket shall be filled with jute or hemp. A pouring collar rope or other device shall be used to hold the hot compound during pouring. Each joint shall be poured in one operation until the joint is filled. Joints shall not be tested until one hour after pouring.

eg) Precast Joints. Precast collars shall be formed in both the spigot and bell of the pipe in advance of use. Prior to making joint contact, surfaces shall be cleaned. When the spigot end is inserted in the collar, it shall bind before contacting the base of the socket.

fh) Brazed Joints. Brazed joints shall be made by first cleaning the surface to be joined down to the base metal, applying flux approved for brazed joints and for the filler metal to be used, and making the joints by heating to a temperature sufficient to melt the approved brazing filler metal on contact. (See Section 890.330(b).) An extracted mechanical joint may be made in copper tube types K or L only for water distribution. The joint shall be made with a mechanical extraction tool and joined by brazing. To prevent the branch tube from being inserted beyond the depth of the extracted joint, depth stops shall be provided. This joint shall be for above-ground use only.

gi) Cement Mortar Joints. Except for repairs, cement mortar joints are prohibited.

~~j) Burned Lead (Welded). (For DWV system only) Every burned (welded) joint shall be made so that the two or more sections to be joined shall be uniformly fused together into one continuous piece. The weld shall be at least as thick as the lead being joined.~~

hk) Bituminized Fiber Pipe Joints. Joints in bituminized fiber pipe shall be made with tapered type couplings of the same composition as the pipe. ~~Joints between bituminized fiber pipe and metal pipe shall be made by means of an adaptor coupling caulked as required in subsection (a).~~

il) Plastic Pipe Joints

1) Every joint in plastic piping shall be made with approved fittings by either solvent-welded or fusion-welded connections, compression fittings, approved insert fittings, metal clamps and screws of corrosion-resistant

material, or threaded joints. (See Appendix A.Table A for approved pipe, fittings and solvent.)

2) Joints and Fittings in Plastic Pipe. Potable water piping fittings and joints shall be in accordance with the manufacturer's recommendations subject to the following: (See Appendix A.Table A, "Approved Standards for Fittings".)

A) Polyethylene (PE) pipe shall be installed only with compression fittings, insert and clamp type fittings or thermal-welded joints and fittings. All clamps shall be of corrosion-resistant material. Fittings shall not prevent the plumbing systems from meeting the demand requirements found in Appendix A.Tables N and O. ~~The inside diameter (ID) of any insert fitting shall not be less than the minimum allowable size for water service/distribution piping. (See Appendix A.Tables D, N and O, for minimum allowable sizes for water service/distribution piping.)~~

B) Polyvinyl chloride (PVC) pipe shall be installed with solvent-welded or flanged joints only. The pipe shall not be threaded. Transition to metallic or other piping shall be made with the use of adaptor fittings. The fittings shall be molded from PVC. The primer and solvent cement used shall be in accordance with the manufacturer's recommendation for PVC piping.

C) Cross Linked Polyethylene pipe (PEX) and fittings shall be installed in accordance with manufacturer's installation instructions (see Appendix A. Table A, "Approved Materials for Water Distribution Piping").

~~C) Polybutylene (PB) pipe shall be installed only with insert and clamp type fittings, compression type, flanged type, or thermal-welded joints and fittings. All clamps shall be of corrosion-resistant material. The ID of any insert fitting shall not be less than the minimum allowable size for water service/distribution piping. (See Appendix A.Tables D, N and O, for minimum allowable sizes for water service/distribution piping.)~~

3) Joints in Plastic Drainage. Joints in plastic drainage piping or vent piping within a building shall be solvent welded. Threaded or flanged joints may be used with adaptor fittings. The solvent cement shall be specific for the type of piping material listed in Appendix A.Table A. O-ring expansion joints are acceptable if accessible.

j~~m~~) Ground Joint Connections. Ground joint connections (when accessible) may be used on the inlet or outlet side of a fixture trap or within the trap seal. Ground joint connections shall not be used in any inaccessible drainage piping.

k~~n~~) No-Hub Soil Pipe Joints. Shielded joints for no-hub cast iron soil pipe shall be made with an elastomeric gasket covered by either a stainless steel shield secured by two or more stainless steel bands or clamps, or covered by cast iron couplings secured with stainless steel nuts and bolts. When a stainless steel shield is used, the shield and clamps shall be corrosion resistant and homogeneous throughout. The joint materials shall comply with ASTM C564 and CISPI 310 or FM 1680.

l~~o~~) Compression Type Joints

1) Compression type joints for hub and spigot cast iron soil pipe shall be made with neoprene insert gaskets in accordance with ASTM C564. The pipe shall comply with the specifications contained in ASTM A-74 with regard to hub and spigot dimensions and tolerances. (See Appendix C.Illustration C.)

2) Compression type joints for copper water tube or brass tube shall be made with brass ferrules and ground joint connections.

m~~p~~) Grooved Type Mechanical Couplings

1) Cut grooved type mechanical couplings, fittings and valves used on standard weight ~~galvanized steel pipe,~~ cast iron pipe or ductile iron pipe shall comply with the grooving dimensions of the AWWA specifications C606, limited to water distribution piping and downspout pipe above ground.

2) Rolled grooved type mechanical couplings, fittings and valves used on standard weight ~~galvanized steel pipe or~~ type K or L copper tubing shall comply with the manufacturer's standard, limited to water distribution piping above ground. Fittings, couplings, and valves shall be compatible with the pipe material. Transition adapters shall be dielectric type.

3) Gaskets for use with potable water piping shall be fabricated from material that is non-toxic, durable and impervious.

n~~q~~) Copper Press Fittings. Copper press fittings for joining copper water tubing shall have an elastomeric o-ring that forms the joint. The fitting shall be made by pressing the socket joint under pressure in accordance with the manufacturer's

installation requirements and NSF/ANSI Standard 61.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.330 Special Joints

a) Copper Tubing to Screwed Pipe Joints. Joints from copper tubing to threaded pipe shall be made by the use of a cast bronze or wrought copper adaptor fitting. The joint between copper tubing and the fitting shall be soldered or, if flared or compression, must be accessible.

b) Welding or Brazing. Brazing or welding shall be in accordance with the provisions of Section 6 of the Code for Pressure Piping, ASME B31.1.

c) Slip Joints. In drainage and water piping, slip joints may be used on the inlet side of the trap or in the trap seal, and on the exposed fixture supply. Slip joints shall not be used in any inaccessible piping. Push-on angle and straight stop valves are permitted, provided that they meet the following specifications: they are installed by being pushed onto copper or chlorinated polyvinyl chloride (CPVC); they are mechanically secured by metal tabs that grip the piping; they are sealed with o-rings; and they are capable of withstanding a water pressure of 150 psi and a temperature of 210 degrees Fahrenheit.

d) Expansion Joints. Expansion joints shall be accessible and may be used where necessary to provide for expansion or contraction of the piping. The expansion joint material shall conform to the type of piping on which it is installed.

e) Compression type couplings shall not be used in unexposed water piping except for water services, water meter yokes, and stop box connections.

f) Grooved Type Mechanical Couplings. Grooved type mechanical couplings, in accordance with Section 890.320(p), may be used in potable water and roof drain piping. These couplings shall not be used in waste, soil or vent piping.

g) Plastic Pipe to Non-Plastic Pipe Joints. Joints between plastic pipe and non-plastic pipe shall be made only by one of the following methods:

1) Pressure Piping

A) Approved insert fittings (in accordance with Appendix A.Table A);

B) Threaded adaptors;

C) Flanges; or

D) Flared fittings.

2) Non-pressure Piping − DWV

~~A)~~ ~~Caulked lead joints with caulked adaptors;~~

A~~B~~) No-hub soil pipe shielded couplings with approved adaptor having a raised bead;

B~~C~~) Compression type joints for hub and spigot cast iron pipe; or

C~~D~~) Threaded adaptors.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.340 Use of Joints

a) Clay Sewer Pipe. Joints in vitrified clay pipe or between vitrified clay pipe and metal pipe shall be made with a neoprene gasket and stainless steel bands or as provided in Section 890.320(d~~f~~), (e~~g~~) or (l~~o~~), if applicable.

b) Concrete Sewer Pipe. Joints in concrete sewer pipe or between concrete sewer pipe and metal pipe shall be made with a neoprene gasket and stainless steel bands or as provided in Section 890.320(d~~f~~), (e~~g~~) or (l~~o~~), if applicable.

c) Cast Iron Pipe. A joint in cast iron water supply pipe shall be made in accordance with Section 890.320~~(a) and~~ (b) or shall be a mechanical joint in accordance with AWWA C151. Joints in cast iron soil pipe shall be made in accordance with Section 890.320(a)~~, (b)~~, (k~~n~~), (l~~o~~) or (m~~p~~).

d) Screw Pipe to Cast Iron. Joints between wrought iron, steel, brass, or copper pipe and cast iron pipe shall be ~~either caulked or~~ threaded joints that are made as provided in Section 890.320~~(a) or~~ (b) and shall be made with proper adaptor fittings.

~~e)~~ ~~Lead to Cast Iron, Wrought Iron or Steel. Joints between lead and cast iron, wrought iron, or steel pipe shall be made by means of wiped joints to a caulking ferrule, soldering nipple, or bushing as provided in Section 890.320(c).~~

e~~f~~) Copper Water Tube. Joints in copper tubing shall be made with cast bronze or wrought copper pressure fittings, properly soldered or brazed, or by means of

compression or flared joints as provided in Sections 890.320(bd), (ce), (fh) and (mp)(2). Flared joints and compression fittings shall not be installed underground except for water services, water meter yokes, and stop box connections.

fg) Plastic Pipe. Joints between plastic pipe and non-plastic material shall be made only with an appropriate type adaptor as provided in Section 890.320(il) and 890.330(g).

1) Plastic-Commingling. There shall be no commingling of plastic materials within the same plumbing system except through the use of proper adaptors or approved solvent as listed in Appendix A.Table A, for connections transitioning from one material to another, only.

2) Plastic Pipe. Plastic pipe shall not be installed in any tunnel or chase that contains uninsulated hot water, hot air or steam piping that causes the ambient air temperature in the tunnel or chase to exceed 180 degrees Fahrenheit.

gh) Building Sewer Connections. An elastomeric coupling seal conforming to ASTM C 425, ASTM C 443, ASTM C 564, ASTM D 4161, ASTM F 477, ASTM D 3139, ASTM D 3212, or ASTM D 412 tests may be used to adapt any two building sewer pipes for different materials or size changes. The flexible couplings shall be attached to the pipe with stainless steel clamps or bolts. The manufacturer's recommended method of installation shall be followed.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.360 Water Closet and Pedestal Urinal

Fixture connections between drainage pipes and water closets, floor outlet service sinks and pedestal urinals, and earthenware trap standards shall be made by means of brass, copper, ~~hard lead,~~ plastic, or iron flanges; ~~caulked,~~ soldered, screwed or solvent welded to the drainage pipe. Flanges of ~~hard lead,~~ plastic and iron flanges for no-hub or compression joints shall be secured to the floor. The connection shall be bolted, with a gasket, washer or setting compound, between the earthenware and the flange. The floor flange shall be set on an approved firm base. The use of putty or non-drying plumber's putty manufactured specifically for plumbing installation is acceptable.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

SUBPART F: PLUMBING FIXTURES

Section 890.610 General Requirements − Material and Design

a) Quality, Function and Efficacy of Fixtures, Appliances and Appurtenances: Plumbing fixtures shall comply with approved designs, be constructed from approved materials, have smooth, impervious surfaces and be free of defects and concealed fouling surfaces. Any appliance, appurtenance or fixture installed pursuant to this Part shall be certified for its intended use and purpose by one or more approved agencies listed in Appendix A. Any appliance that amends or alters potable water in a plumbing system shall be certified by one or more agencies listed in Appendix A for efficacy in achieving its listed use and purpose. In the absence of a suitable standard for certification, approval may be sought pursuant to Section 890.1940 by submitting plans, specifications, independent testing data and other such records as may be required by the Department in making a determination of approval for use. (See Appendix A.~~:~~Table A ("~~"~~Approved Materials and Standards for Plumbing Fixtures and Fixture Fittings)~~"~~ and ~~"~~Approved Standards for Plumbing Appliances/Appurtenances/Devices)~~"~~.)

b) Used plumbing material, equipment and fixtures for plumbing installations shall comply with this Part.

c) Any plumbing equipment condemned by the Department because of wear, damage, defects or sanitary hazards shall not be used in a plumbing system.

d) In healthcare facilities subject to the Ambulatory Surgical Treatment Center Act, Hospital Licensing Act, Nursing Home Care Act, Assisted Living and Shared Housing Act or Community Mental Health Act~~In buildings other than residential~~, hot water shall be generated, distributed and maintained at 124~~160~~ degrees Fahrenheit or higher. Any ~~mixing or~~ tempering of hot water for use in plumbing fixtures, appliances or appurtenances shall occur within 24~~12~~ inches before any fixture, appliance or appurtenance except where such installations create a hazard to the user or interferes with the intended use of the fixture. In such circumstances, the tempering device may be placed no more than the lesser of the vertical distance from the fixture, appurtenance or device to the floor or to the ceiling plus 12 inches, in any direction of the fixture, appurtenance or device. ~~Mixing and t~~Tempering devices shall comply with the requirements of this Part. In healthcare facilities, water heater shall be capable of achieving 160 degrees Fahrenheit.~~Distribution of tempered or mixed water is prohibited.~~

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.630 Installation

a) Cleaning. Plumbing fixtures shall be installed in a manner to afford easy access for cleaning.

b) Securing Fixtures. Floor outlet or wall hung fixtures shall be secured by screws or bolts of copper, brass or other equally durable corrosion resistant materials.

c) Wall-Hung Fixtures. Wall-hung fixtures shall be rigidly supported by a concealed metal supporting member so that no strain is transmitted to the fixture connection.

d) Setting. Plumbing fixtures and traps shall be set level and in a true alignment.

e) Potable Water Supply Connection. Fixtures, appliances or appurtenances designed and intended to be supplied with cold water shall be supplied with the cold water connected on the user's right side or in accordance with the manufacturer's instructions. Fixtures, appliances or appurtenances designed and intended to be supplied with hot water shall be supplied with hot water connected on the user's left side or in accordance with the manufacturer's instructions. Fixtures, appliances and appurtenances designed and intended to be supplied with tempered water ~~or mixed water~~ shall be supplied with tempered ~~or mixed water~~ connected on the user's left side or in accordance with the manufacturer's instructions and in compliance with Section 890.610(d), as applicable. ~~Hot and cold, tempered and cold, or tempered water only shall be supplied to all plumbing fixtures that are designed for hot and cold, tempered and cold, or tempered water. All mixing faucets and single lever faucets shall have both hot or tempered and cold water connected to them with the hot or tempered water supply on the left side of the faucet.~~ The cross piping of cold water and hot~~, mixed~~ or tempered ~~and cold~~ water to a mixing faucet by internal modification of the faucet is prohibited~~shall not be allowed~~. Each lavatory and sink faucet shall have supply pipes that are accessible.

f) Improper Location. Piping, fixtures or equipment shall not be located or installed so as to interfere with the normal operation of windows, doors or other exit openings. Plumbing fixtures shall be installed in an area where there is sufficient room for the fixture to be used for its intended purpose.

g) When plumbing is installed it shall meet the requirements of the Illinois Accessibility Code.

h) Surrounding Materials. Where water closets or urinals are installed for public use, the flooring under the fixture base extending to at least 18 inches from the front and both sides of the water closet or urinal, and extending from the back of the water closet or urinal to the wall, shall be of non-absorbent material.

i) A water heater thermostat shall not be an acceptable alternative water temperature control device.

j) Emergency showers and eye wash stations installed in accordance with Section 890.800(a) and (b) shall be supplied with tepid water.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.660 Urinals

a) Automatic Flushing Tank~~.~~

1) Flushing tanks shall be used for washout urinals only. Tanks flushing more than one ~~(1)~~ urinal shall be automatic, shall provide a sufficient volume of water to flush all urinals simultaneously, and shall flush at least four ~~(4)~~ times per hour. One automatic flushing tank may serve no more than three ~~(3)~~ washout urinals.

2) Float Valves. Float valves or ball cocks, if provided for flushing tanks, shall be of the anti-siphon type and of sufficient capacity to refill the trap.

b) Urinal Flush Valves. No valve shall be used to flush more than one ~~(1)~~ blow-out, siphon-jet or pedestal urinal. One ~~(1)~~ properly sized automatic flush valve may serve more than one ~~(1)~~, but not more than a battery of three ~~(3)~~ washout urinals, and shall flush at least four ~~(4)~~ times per hour. The water supply line to each urinal flush valve shall be as required by the manufacturer, but not less than ~~three-fourths (¾)~~ inch. Protection against backflow shall be provided by an approved vacuum breaker. (See Sections 890.1130(a), (b)~~,~~ (c) and 890.1140.)

c) Trough urinals are prohibited.

d) Nonwater Urinals. Nonwater urinals, with the exception of hybrid urinals, shall connect to a branch drain that serves one or more lavatories, water closets or water using urinals that discharge upstream of the urinals.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.690 Bathtubs, Shower Receptors and Compartments

a) Shower Installation. All shower compartments, except those built directly on a slab floor or having receptors constructed of precast stone, terrazzo, concrete, molded stone, molded fiberglass, or an equally durable material such as cultured stone or synthetic stone, shall have a ~~lead,~~ copper, ABS, PVC or fiberglass shower pan. (See Section 890.220.) All sides of the shower pan shall turn up at least 2 inches above the finished shower floor level. Precast molded receptors

shall have a minimum ¼ inch thick flange. Traps shall be constructed so that the pan is fastened to the trap at the seepage entrance, making a water-tight joint between the pan and the trap. Shower receptacle waste outlets shall be at least 2 inches in diameter and have a removable strainer.

b) Water Temperature Safety. All shower compartments and shower-bath combinations or any other fixture intended for bathing shall be provided with a thermostatic ~~an automatic~~ safety water mixing device to prevent sudden unanticipated changes in water temperature or excessive water temperatures. The automatic safety water mixing device shall comply with ASSE 1016/ASME A112.1016/CSA B125.16~~, in accordance with Section 890.210,~~ and be designed with a maximum handle rotation limit/stop and shall be installed at the point of use~~, or comply with ASSE 1017 or ASSE 1070~~, in accordance with Section 890.210. The automatic safety water mixing device shall be adjusted to a maximum setting of 115 degrees Fahrenheit at the time of installation. The ~~temperature of mixed water provided to multi-shower units or multi-person showers shall be controlled by a master automatic safety water mixing device, or the~~ tempered~~mixed~~ water temperature shall be individually regulated by automatic safety mixing valves for each shower unit or be controlled by an Automatic Temperature Control Mixing valve. A water heater thermostat shall not be an acceptable alternative water temperature control device.

c) Dimensions. Single family shower compartments or stalls shall have at least 1,024 square inches outside dimension (OD) floor area and shall be at least 32 inches in shortest outside dimension. All other shower compartments or stalls shall have no less than 1,296 square inches outside dimension floor area and shall be at least 32 inches in shortest outside dimension.

d) Materials. Shower walls shall be constructed of durable, smooth, non-absorbent, non-corrosive and waterproof materials, such as fiberglass, enameled metal or plastic sheeting. All shower compartments or stalls shall have a slip-resistant floor (bottom) surface.

e) Public or Institution Showers. Floors of public shower rooms shall be drained so that no waste water from any bather will pass over areas occupied by other bathers. This will not prohibit the use of column showers.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.740 Kidney Dialysis Machines

a) The water supply inlet to kidney dialysis equipment shall have a reduced pressure principle backflow preventer assembly complying with ASSE 1013 or a fixed air

gap.

1) A portable dialysis unit or machine shall have a reduced pressure principle backflow preventer assembly installed on the water supply inlet on the unit.

2) Stationary dialysis equipment within a facility shall require, at the filter room or ~~the dialysis machines~~, a reduced pressure principle backflow preventer assembly on the water supply or a water supply with a fixed air gap.

3) The individual connections of the dialysis related equipment to the dialysis pure water system shall not require additional backflow prevention. ~~Dialysis equipment shall be installed in accordance with this Part and the manufacturer's specifications. Any conflicts shall be submitted to the Department for resolution.~~

b) The water supply to a dialysis reuse room or dialysis machine repair room shall be isolated from all other deionized (DI) or reverse osmosis (RO) water lines by an RPZ or an air gap.

c) A sign no smaller than 8 by 10 inches with the wording "This Water For Dialysis Only" shall be placed above a sink with DI water or RO water supplied to the faucet.

d) The discharge for each dialysis unit or machine, portable or stationary, shall be provided with an individual indirect waste connection to the sanitary drainage system. Each stand pipe shall be individually trapped and vented, or a vertical common vent may serve two dialysis stations. (See Appendix K.Illustration O.) Vents shall be installed in accordance with Appendix A.Table I.

e) The discharge from kidney dialysis equipment shall be separated from the kidney dialysis equipment water supply inlet and dialysate additives. Compliance with this requirement may be achieved by:

1) Two Separate Wall Boxes. One wall box is provided for water supply and dialysate additives and a separate box is provided for dialysis waste. The wall box receiving patient waste shall:

A) Provide a fixed air gap of at least one inch;

B) Offer protection, such as a compartment door or access panel, to protect against splatter, splashing or overflow to prevent

contamination of the other wall box compartments or the rest of the dialysis station (Note: An air gap may not be contained in a sealed compartment.);

C) Allow for easy observation and sampling of the discharge; and

D) The drain outlet from the wall box shall be a minimum of 1½ inches in diameter.

2) Compartmentalized Wall Box. A single wall box may be installed when separation of waste and water supply and dialysate additives have been provided. Separation may be achieved by:

A) Installation of a wall box designed with isolated compartments that provide a physical barrier between waste and water supply and dialysate additives. The compartment designated to receive dialysis patient waste shall be designed and installed to comply with subsection (e)(1); or

B) Quick Connection Fitting. A quick connection fitting may be installed in the wall box to receive the patient waste. This fitting shall be located below all other water supply and dialysate additive connections. The fitting receiving the waste shall be piped to discharge to an indirect waste receptor at a location isolated from the wall box. Isolated means either physically separated from the wall box by a wall or panel or located a minimum of 18 inches vertically and horizontally from the nearest edge of the wall box. The indirect discharge shall be installed to comply with subsection (e)(1).

f) All plumbing materials associated with dialysis equipment, including the reduced pressure principle (RPZ) backflow preventer assembly device, shall consist of non-metallic materials approved in Appendix A.Table A.

g) All water and dialysis supply lines and waste lines to and from dialysis machines shall be designated to prevent cross-contamination.

h) Traps

1) A minimum developed length of 8 inches shall be provided from the wall box outlet to the weir of the trap.

2) The developed length from the wall box outlet to the trap weir

shall not exceed 24 inches.

3) Traps serving dialysis patient stations shall be a minimum of 1½ inches.

i) Drainage Fixture Units. Drainage Fixture Units (DFU) for the discharge from a kidney dialysis machine shall be assigned based on actual flows from the dialysis stations in accordance with Section 890.1330(b).

(Source: Amended at 43 Ill. Reg. _____, effective _____)

SUBPART G: HANGERS, ANCHORS AND SUPPORTS

Section 890.920 Vertical Piping

a) Attachment. Vertical piping shall be secured at intervals to keep the pipe in alignment and carry the weight of the pipe at its maximum capacity. Stacks shall be supported at their base and, if over two ~~(2)~~ stories in height, shall be supported at each floor by floor clamps. (See Appendix G: Illustrations A and B.)

b) Cast Iron Soil Pipe. Cast iron soil pipe shall be supported at not less than every story height and at its base. Hubless or compression gasket joint shall be supported at not less than every story height, at its base and at intervals to keep the pipe in alignment and to adequately support the weight of the pipe at its maximum capacity. (See Appendix G. ~~:~~ Illustrations A and B.)

c) Threaded Pipe. Threaded pipe shall be supported at every other story height. Supports shall be of ferrous material.

d) Copper Tube. Hard drawn copper tube and annealed copper tubing shall be supported at least every story at not more than ~~ten (~~10~~)~~ foot intervals. On long lines where there are provisions for expansion and contraction, anchors may be a maximum of four ~~(4)~~ stories apart for cold water risers and drain/waste/vent (DWV) stacks, and two ~~(2)~~ stories apart for hot water risers, provided there are sleeves or similar devices at intermediate floors to restrain lateral movement. Supports shall be of copper material or other material which will not react with the piping material, and which will properly support the pipe.

~~e) Lead Pipe. Lead pipe shall be supported at intervals not exceeding four (4) feet. Supports shall be of lead or softer material.~~

e~~f~~) Plastic Pipe. Hangers and straps shall not compress, distort, cut or abrade the piping and shall allow free movement of the pipe. Wire pipe hooks shall not be

used to support plastic pipe. Restraining joints and expansion joints shall be installed as required. All vertical piping shall be maintained in straight alignment with supports at each floor level or at intervals of ~~ten (~~10~~)~~ feet, whichever is less. Trap arms in excess of ~~three (~~3~~)~~ feet shall be supported as close as possible to the trap.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.930 Horizontal Piping

a) Support. Horizontal piping shall be supported at sufficiently close intervals to keep the piping in alignment and prevent sagging.

b) Cast Iron Soil Pipe. Where joints occur, suspended cast iron pipe shall be supported within 18 inches of each hub or joint and at not more than 5 foot intervals; however, pipe exceeding 5 feet in length may be supported at not more than 10 foot intervals. Hubless or compression gasket joints must be supported at least at every other joint except that when the developed length between hubless or compression gasket joints exceeds 4 feet, supports shall be provided at each joint. Supports shall be placed on or immediately adjacent to the joint. Suspended pipes shall be braced to prevent horizontal movement.

c) Threaded Pipe. Threaded pipe 1½ inches and larger shall be supported at least at 12 foot intervals; smaller pipe (e.g., 1¼ inch pipe) shall be supported at least at 8 foot intervals. Supports shall be of ferrous material.

d) Copper Tube. Hard drawn copper tube shall be supported at least every 8 feet for one inch and smaller tube, and at 10 foot intervals for larger sizes. Annealed copper tubing shall be supported at least every 8 feet. Supports shall be of copper material or other material of sufficient strength to support the tubing and which will not react with copper piping material.

~~e) Lead Pipe. Lead pipe shall be supported for its entire length. Supports in contact with the pipe shall be of lead or softer material.~~

e~~f~~) Plastic Pipe. Hangers and straps shall not compress, distort, cut or abrade the piping and shall allow free movement of the pipe. Wire pipe hooks shall not be used to support plastic pipe. Restraining joints and expansion joints shall be installed as required. All horizontal piping shall be supported at intervals of not more than 4 feet, and at ends of branches, and at changes of direction or elevation. Trap arms in excess of 3 feet shall be supported as close as possible to the trap.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

SUBPART I: WATER SUPPLY AND DISTRIBUTION

Section 890.1130 Protection of Potable Water

a) Cross-Connection (Submergence). Potable water supply piping and water discharge outlets shall not be submerged in any sewage or toxic substance. Potable water supply piping or water discharge outlets that are submerged in other substances shall be provided with backflow protection as listed in subsection (f). (See Appendix I.Illustrations B and C.)

b) Approval of Devices and Maintenance. All devices and assemblies for the prevention of backflow shall comply with the standards listed in Appendix A.Table A. All reduced pressure principle (RPZ), reduced pressure detector (RPDA), double check (DCA) and double check detector (DCDA) backflow prevention assemblies shall be tested and approved by a Cross-Connection Control Device Inspector (CCCDI) before initial operation, and at least annually after initial inspection. Records to verify testing and maintenance shall be available at the site of the installation.

c) Backflow. The water distribution system shall be protected against backflow. Each water outlet shall be protected from backflow by having the outlet end from which the water flows spaced a sufficient distance above the flood-level rim of the receptacle into which the water flows to provide a minimum fixed air gap. When it is not possible to provide a minimum fixed air gap, the water outlet shall be equipped with an accessible backflow prevention device or assembly in accordance with subsection (f) of this Section or Section 890.1140.

d) Fire Safety Systems. The installation of any fire safety system involving the potable water supply system shall be protected against backflow as follows:

1) Backflow protection is not required for fire safety systems constructed as follows:

A) The system shall be looped, with no dead ends, to allow circulation, to prevent the stagnation of water in the line;

B) The system shall not have any non-potable connections or a fire department hose (Siamese) connection;

C) The system shall have 20 sprinkler heads or less; and

D) The system shall be constructed of potable water supply quality

pipe in accordance with Appendix A.Table A.

2) When backflow protection is required, a double detector check valve or double check valve backflow preventer assembly shall be installed at the fire safety system's point of connection to the potable water supply when a fire safety system has no chemical additives or non-potable connection and:

A) The fire safety system has no fire department hose connections; or

B) The fire safety system has one or more fire department hose connections (for boosting pressure and flow to the fire safety system) that are served only by fire fighting apparatus connected to a public water supply or a fire department that does not use chemical additives or rely upon any non-potable water supply.

3) A fixed air gap with a break tank or other storage vessel or an RPZ~~a reduced pressure principle~~ backflow preventer assembly ~~(RPZ)~~ shall be installed at the fire safety system's point of connection to the potable water supply if:

A) The fire safety system contains additives such as antifreeze, fire retardant or other chemicals. (The RPZ may be located at the point of connection to that section of the system containing additives when the system's connection to the water supply is protected by a double detector check valve backflow preventer assembly.); or

B) Non-potable water flows into the fire safety system by gravity; or

C) There is a permanent or emergency connection through which water can be pumped into the fire safety system from any other non-potable source; or

D) Fire department connections are available that could permit water to be pumped into the fire safety system from a non-potable source capable of serving the fire safety system. A non-potable source of water shall be considered capable of serving the fire safety system under the following conditions: it must be capable of year-round use, maintained with at least 50,000 gallons of usable water not subject to freezing, accessible to fire fighting pumper equipment, and located within 1,700 feet of the facility.

e) Prohibited Connections

1) Sewage Lines. There shall be no direct connection between potable water lines and sewage lines or equipment and vessels containing sewage. Connections shall be made only through a minimum fixed air gap as outlined in subsection (f)(5).

2) Chemical or Petroleum Pressure Vessels. No direct connection shall occur between any potable water supply and any pressure vessel, i.e., storage tank, tank car, tank truck or trailer, or other miscellaneous pressurized tank or cylinder containing or having contained liquified gaseous petroleum products or other liquified gaseous chemicals. When it is necessary to discharge from a potable water line to a pressure vessel, the discharge shall be through a minimum fixed air gap as outlined in subsection (f)(5). Exception: Chemical pressure vessels containing chemicals used in the water treatment process, for uses other than private purposes, are exempt from this subsection (e)(2).

3) If water under pressure is required, as in subsections (e)(1) and (2), it shall be supplied by means of an auxiliary pump taking suction from a tank provided for this purpose only with an over-rim supply having the required minimum fixed air gap.

4) A potable water line to a single wall refrigerant condenser shall be provided with a backflow preventer complying with ASSE 1012 or 1013.

5) No pipe or fitting of the water supply system shall be drilled or tapped nor shall any band or saddle be used except at the water main in the street. Exception: See Section 890.320(f~~h~~) for potable water use only.

f) Devices for the Protection of the Potable Water Supply. Approved backflow preventers or vacuum breakers shall be installed with all plumbing fixtures and equipment that may have a submerged potable water supply outlet and that are not protected by a minimum fixed air gap. Connection to the potable water supply system for the following fixtures or equipment shall be protected against backflow with one of the appropriate devices as indicated below:

1) Inlet to receptacles containing low hazard substances (steam, compressed air, food, beverages, etc.):

A) fixed air gap fitting;

B) reduced pressure principle backflow preventer assembly;

C) atmospheric vacuum breaker unit;

D) double check valve backflow preventer assembly;

E) double check backflow preventer with atmospheric vent assembly; or

F) dual check valve.

2) Inlet to receptacles containing high hazard substances (vats, storage containers, plumbing fixtures, etc.):

A) fixed air gap fitting;

B) reduced pressure principle backflow preventer assembly; or

C) atmospheric vacuum breaker unit.

3) Coils or jackets used as heat exchangers in compressors, degreasers and other equipment involving high hazard substances:

A) fixed air gap fitting; or

B) reduced pressure principle backflow preventer assembly.

4) Direct connections that are subject to back pressure:

A) Receptacles containing low hazard substances (vats, storage containers, plumbing fixtures, etc.):

i) fixed air gap fitting;

ii) reduced pressure principle backflow preventer assembly;

iii) double check valve backflow preventer assembly;

iv) double check backflow preventer with atmospheric vent assembly; or

v) dual check valve.

B) Receptacles containing high hazard substances (vats, storage containers, etc.):

i) fixed air gap fitting; or

ii) a reduced pressure principle backflow preventer assembly.

5) Inlet to or direct connection with sewage or lethal substances: fixed air gap fitting.

6) Hose and spray units or stations shall be protected by one of the appropriate devices as indicated below:

A) Fixed air gap;

B) Reduced pressure principle backflow preventer assembly;

C) Double check valve backflow preventer assembly;

D) Double check valve backflow preventer with atmospheric vent assembly;

E) Dual check valve backflow preventer assembly;

F) Atmospheric vacuum breaker unit.

g) Installation of Devices or Assemblies

1) Devices of All Types. Backflow preventer assemblies and devices shall be installed to be accessible for observation, maintenance and replacement services. Backflow preventer devices or assemblies shall not be installed where they would be subject to freezing conditions, except as allowed in Section 890.1140(d).

2) All in-line backflow/back siphonage preventer assemblies shall have a full port type valve with a resilient seated shut-off valve on each side of the preventer. Relocation of the valves is not permitted.

3) A protective strainer shall be located upstream of the first check valve on all backflow/back siphonage preventers unless the device contains a built-in strainer. Fire safety systems are exempt from the strainer requirement.

4) Atmospheric vacuum breakers shall be installed with the critical level above the flood level rim of the fixture they serve, and on the discharge side of the last control valve of the fixture. No shut-off valve or faucet

shall be installed beyond the vacuum breaker.

5) No in-line double check valve backflow preventer assembly (DCV) or reduced pressure principle backflow preventer assembly (RPZ) shall be located more than 5 feet above a floor, or be installed where it is subject to freezing or flooding conditions. After installation, each DCV and RPZ shall be field tested in-line in accordance with the manufacturer's instructions by a cross-connection control device inspector before initial operation. (See subsection (b).)

6) A dual check backflow preventer with atmospheric vent assembly shall not be installed where it is subject to freezing or flooding conditions.

7) Closed water systems with hot water storage shall have a properly sized thermal expansion tank located in the cold water supply as near to the water heater as possible and with no shut-off valve or other device between the heater and the expansion tank. Exception: In existing buildings with a closed water system, a properly sized pressure relief valve may be substituted in place of a thermal expansion tank. For closed water systems created by backflow protection in manufactured housing, as required in Section 890.1140(i), a ballcock with a relief valve may be substituted for the thermal expansion tank.

h) Dead ends shall not be installed, constructed or maintained in any plumbing system except as provided in this Section.

1) Where dead ends are installed and maintained on water distribution systems to permit future use in a building or facility, to supply emergency fixtures, or to supply fixtures used intermittently or infrequently, building owners or operators shall be responsible for reducing periods of low flow or decreased usage to prevent the growth of opportunistic pathogens. Periods of stagnation shall not exceed 72 hours. Pipes or tubes installed and maintained for future use shall be as short as practicable but not to extend more than 12 inches past branch connections.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.1150 Water Service Pipe Installation

a) Underground Water Service. Water service pipe shall be installed outside the foundation wall in accordance with either subsection (a)(1) or (2) and shall comply with both subsections (a)(3) and (4).

1) Water service and building drain or building sewer may be installed in separate trenches with a minimum of 10 feet horizontal separation. Material listed in Appendix A.Table A (Approved Materials for Building Sewer and Approved Materials for Water Service Pipe) shall be used, provided that the material is specific for this type of installation. (See Appendix I.Illustration E.)

2) The water service and the building drain or building sewer may be installed in the same trench provided that the water service is placed on a solid shelf a minimum of 18 inches above the building drain or building sewer. The building sewer shall be of material listed in Appendix A.Table A (Approved Building Drainage/Vent Pipe) for a building drain. (See Appendix I.Illustration F for the proper installation of water service, building drain and building sewer.)

3) The minimum depth for any water service pipe shall be at least 36 inches or the maximum frost penetration of the local area, whichever is of greater depth.

4) No water service pipe shall be installed or permitted outside of a building or in an exterior wall unless the pipe is protected from freezing, in accordance with Section 890.1210(a).

b) Potable Water Piping and Sanitary Sewer Crossing Installation Requirements

1) Potable water piping that passes above or below a sanitary sewer shall be installed with a minimum vertical separation of 18 inches for a distance of 10 feet on either side from the center of the sanitary sewer.

2) If potable water piping passes beneath a sanitary sewer or drain, the sanitary sewer or drain shall be constructed of materials as specified in Appendix A.Table A (Approved Building Drainage/Vent Pipe) for building drains and shall extend on each side of the crossing to a distance of at least 10 feet as measured at right angles to the water line. The potable water piping shall comply with Appendix A.Table A as specified for a water service pipe (Approved Materials for Water Service Pipe). (See Appendix I.Illustration G.)

3) When compliance with subsection (b)(1) or (2) is not possible, a pressure rated pipe, approved for building drain material listed in Appendix A.Table A, shall encase the water service pipe. The casing pipe shall be sealed with a casing seal and extend 10 feet on either side of the center of the sanitary sewer pipe. The sleeve or case shall be at least two times the

size of the water service.

c) When compliance with subsection (a) or (b) is not possible, the Department shall be contacted for consideration of alternative methods.

d) Stop-and-Waste Valve. Combination stop-and-waste valves and cocks shall not be installed in an underground potable water pipe. Frost-free hydrants and fire hydrants shall not be considered stop-and-waste valves. (See Section 890.1140(e).)

e) Replacement or Repair of Existing Service Lines. If any portion of a service line is constructed of lead or galvanized steel~~materials not approved under Appendix A~~, and the service line is to be modified, repaired or replaced, then the portion constructed of lead or galvanized steel~~unapproved materials~~ and all downstream portions of the service line must be replaced with approved materials listed in Appendix A. Repair of existing service lines shall be made in accordance with Section 890.350(b) and only using materials approved in Appendix A. Exception: Where an emergency repair on a service line constructed of lead or galvanized steel pipe results in a partial service line replacement, the person responsible for commencing the repair shall:

1) Notify building owners or operators in writing that a repair has been completed. Such notification shall include, at a minimum:

(A) A warning that the work may result in sediment, possibly containing lead, in the building's water supply system;

(B) Information concerning practices for preventing the consumption of any lead in drinking water, including a recommendation to flush water distribution pipe during and after the completion of the repair or replacement work and to clean faucet aerator screens; and

(C) Information regarding the dangers of lead in young children and for pregnant women.

2) Provide filters for at least one fixture supplying potable water for consumption. Filter must be compliant with NSF/ANSI Standards 53 and 42. Filters are required to be provided until such time that the remaining portions of the service line have been replaced with materials approved in Appendix A, Table A or a waiver noted in subsection (e)(4) signed by the property owner has been submitted to the Department.

3) Replace the remaining portion of the lead service line within 30 days of the repair. If a complete service line replacement cannot be made within the required 30 day period, the person responsible for commencing the repair shall notify the Department in writing of the following within 24 hours of the repair. Notification shall include, at a minimum:

(A) An explanation of why it is not feasible to replace the remaining portion of the service line within the allotted time; and

(B) Provide a timeline for when the remaining portion of the service line will be replaced.

4) If complete repair of a service line cannot be completed within 30 days due to denial by the property owner, the person commencing the repair shall request the affected property owner to sign a waiver developed by the Department. If a property owner of a non-residential building or residences operating as rental properties denies a complete service line replacement, the property owner shall be responsible for installing and maintaining point of use filters compliant with NSF/ANSI Standards 53 and 42 at all fixtures intended to supply water for the purposes of drinking, food preparation, or making baby formula. Filters shall continue to be supplied until such time that the property owner has affected the remaining portions of the service line to be replaced. If the remaining portions of the service line are not replaced and the required point of use filters are not installed and maintained in accordance with manufacturer's specifications, then the Department or the local authority having jurisdiction may require the water to be shutoff to the property rendering the building or facility uninhabitable, or may take additional actions to enforce the requirements of the Lead Poisoning Prevention Act and the Lead Poisoning Prevention Code, as applicable.

f) Any service line intended to supply seasonal or infrequent uses, such as lawn irrigation systems, fire protection systems, which may include fire hydrant leads, fire hydrant loops, fire sprinkler systems or hose reels, shall be installed in a manner to prevent or minimize stagnation of water. This shall be achieved by installing service lines to achieve flow demands of systems and minimize water stored in a system in accordance with one of the following methods:

1) Install a combined building water service capable of meeting the larger of the domestic or fire suppression system flow requirements. This method shall not be used in installations where domestic use and combined service line result in a water age exceeding 72 hours under normal building conditions;

2) Install a service line designed to ensure the water age within the service line does not exceed 7248 hours under normal building operations with the design certified by an Illinois licensed professional engineer, an Illinois licensed architect or an individual authorized to design plumbing systems in accordance with the Plumbing License Law~~individual Certified in Plumbing Design (CPD) by the American Society of Plumbing Engineers~~ and approved in writing by the Department prior to installation; or

3) Cross-Connection Control by Containment: Install an approved backflow device, within as close to the point of connection to the potable water supply as practicable not to exceed 10 feet~~ a distance no greater than two times the nominal inside pipe diameter of the service line, from the water main or pipe supplying the water service~~.

4) Fire hydrant leads shall not be considered dead ends when the hydrant is installed as close to the point of connection to the potable water supply as practicable not to exceed 10 feet.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.1200 Water Service Sizing

a) Water Service Pipe Sizing. The water service pipe from the street main (including the tap) to the water distribution system for the building shall be sized in accordance with Appendix A~~,~~ Tables M, N, O, P and Q. Water service pipe and fittings shall be at least ¾ inch diameter. Plastic water pipe shall be rated at a minimum of 160 psi at 73.4°F. If flushometers or other devices requiring a high rate of water flow are used, the water service pipe shall be designed and installed to provide this additional flow.

b) Demand Load. The calculation of the water service demand load for a building shall be based on the total number and types of fixtures installed in the building, assuming the simultaneous use of such fixtures.

~~c) Unused sections of water service or water distribution piping ("dead ends"), where the water in the piping may become stagnant, are prohibited. A developed length of more than 2 feet shall be considered a dead end.~~

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.1210 Design of a Building Water Distribution System

a) Design and Installation. The design and installation of the hot and cold water building distribution systems shall provide a volume of water at the required rates and pressures to ensure the safe, efficient and satisfactory operation of fixtures, fittings, appliances and other connected devices during periods of peak use. No distribution pipe or pipes shall be installed or permitted outside of a building or in an exterior wall or attic unless the pipe is protected from freezing.

b) Size of Water Distribution Pipes. The fixture supply for each fixture shall be at least the minimum size provided in Appendix A.Table D. The size of all other water distribution pipes shall be determined by calculating the water supply demand (in water supply fixture units) for that portion of the water distribution system served by the pipe. Using Appendix A.Tables M, N, O, P and Q, the cumulative water supply demand or load shall be calculated for all fixtures, piping, valves and fittings served by the water distribution pipe, and the pipe shall meet the minimum size provided in Appendix A.Table N or O, as applicable. Exception: As an alternative to using Tables M, N, O, P and Q to design and size the piping in the water distribution system, the system may be designed and sized employing current engineering practices in conjunction with manufacturer's instructions and specifications, provided that the design/plans are approved in writing by an Illinois licensed professional engineer, an Illinois licensed architect or an individual Certified in Plumbing Design (CPD) by the American Society of Plumbing Engineers and approved in writing by the Department.

c) Minimum Water Pressure. The minimum constant water service pressure on the discharge side of the water meter shall be (at least) 20 psi, and the minimum constant water pressure at each fixture shall be at least 8 psi or the minimum recommended by the fixture manufacturer.

d) Auxiliary Pressure. Supplementary Tank. If the pressure in the system is below the minimum 8 psi at the highest water outlet when the flow in the system is at peak demand, an automatically controlled pressure tank or gravity tank of a capacity to supply sections of the building installation that are too high to be supplied directly from the public water main shall be installed.

e) Low Pressure Cut-Off. When a booster pump, except those used for fire protection, is used on an auxiliary pressure system, a low-pressure cut-off switch shall be installed on the booster pump to prevent the creation of pressures less than 5 psi on the suction side of the pump. A shut-off valve shall be installed on the suction side of the water system and within 5 feet from the pump suction inlet, and a pressure gauge shall be installed between the shut-off valve and pump.

f) Water Hammer Prevention. Building water distribution piping shall be installed in a manner that reduces the occurrence of water hammer. ~~Water distribution~~

~~systems with fast acting or solenoid-operated valves shall be equipped with approved mechanical devices, installed in accordance with the manufacturers' instructions.~~ When the design or use of alternative materials per the manufacturer's instructions reduce the possibility of water hammer the hammer arrestor may be excluded from all fixtures with exception to the following fixture terminations which may incorporate automatic quick closing valves:

1) Clothing washing machines;

2) Dish washing machines;

3) Refrigerators;

4) Any fixture or termination utilizing a quick closing automatic solenoid valve;

5) Any occurrence of water hammer where peak surge pressures exceed 250 psi.

Air chambers and fixtures that create a dead leg or allow water to stagnate are prohibited. When water hammer occurs in a water distribution system, the building owner shall cause the installation of approved mechanical devices or water hammer arrestors necessary to eliminate water hammer. Where a mechanical device or water hammer arrestor is used, the manufacturer's specifications for location and installation shall be followed. All mechanical devices and water hammer arrestors shall be accessible for maintenance. ~~All building water supply systems shall be provided with air chambers or approved mechanical devices or water hammer arrestors to absorb pressure surges. Water pressure absorbers shall be installed at the ends of long pipe runs or near batteries of fixtures.~~

~~1) Air Chambers – An air chamber that is installed in a fixture supply shall be at least 12 inches in length and the same diameter as the fixture supply, or an air chamber with an equivalent volume may be used. An air chamber that is installed in a riser shall be at least 24 inches in length and at least the same size as the riser.~~

~~2) Mechanical Devices – If a mechanical device or water hammer arrestor is used, the manufacturer's specifications for location and installation shall be followed.~~

g) Excessive Static Water Pressure

1) If water main pressure exceeds 80 psi, a pressure reducing valve and a strainer with a by-pass relief valve shall be installed in the water service pipe near the entrance to the building to reduce the water pressure to 80 psi or lower, except where the water service pipe supplies water directly to a water pressure booster system, an elevated water tank, or to pumps provided in connection with a hydropneumatic or elevated water supply tank system. Sillcocks and outside hydrants may be left on full water main pressure.

2) When the water pressure exceeds 80 psi at any plumbing fixture, a pressure reducing valve, pressure gauge and a strainer with a by-pass relief valve shall be installed in a water supply pipe serving the fixture to reduce the water pressure at the fixture to 80 psi or lower.

h) Approval of Auxiliary Pressure Systems. Whenever, in any building, structure or premises receiving its potable water supply from the public water system, a pump or any other device for increasing the water pressure is to be installed, installation plans shall be approved by the Department prior to installation in accordance with Section 890.1940.

i) Variable Street Pressures. If the water main has a wide fluctuation in pressure, the water distribution system shall be designed for minimum pressure available at the main.

(Source: Amended at 43 Ill. Reg. _____, effective _____)

SUBPART N: BUILDING WATER QUALITY

~~Section 890.2000 Approval of Water Treatment Technologies~~

~~Water treatment technologies are plumbing appliances and shall comply with Section 890.610(a) or be submitted to the Department for approval prior to installation in accordance with Section 890.1940.~~

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.20~~1~~0 Compliance with Community Water Supply Requirements

Where plumbing appliances or appurtenances ~~Facility plumbing systems utilizing water treatment technologies~~ or supplemental disinfectants, including but not limited to, chlorine, monochloramine, chlorine dioxide, and copper-silver ions are used to alter biological, physical, or chemical characteristics or for the control of opportunistic pathogens the building owners, representatives of building owners, tenants, or their designees shall comply with the Drinking

Water Systems Code, the Environmental Protection Code and Environmental Protection Act, as applicable.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.2020 Decorative Fountains and Aesthetic Water Fixtures

a) Decorative fountains or aesthetic water fixtures, including, but not limited to, water walls or spray fountains shall be designed, installed, managed and ~~maintained~~controlled in accordance with this ~~Part~~Section in all buildings other than single family residences.

b) Decorative fountains and aesthetic water fixtures shall be supplied from a public water system, as defined by Section 3.365 of the Illinois Environmental Protection Act, or a water well, as defined by Section 3(e) of the Water Well Construction Code~~not be supplied from a harvested water system~~.

c) Decorative fountains and aesthetic water fixtures that utilize recirculation and provide for direct contact by the public shall comply with the Swimming Facility Code.

d) Buildings owners, representatives of building owners, tenants, or their designess shall be responsible for ~~Owners and operators of decorative fountains and aesthetic water fixtures shall~~ developing and implementing~~maintain~~ a disinfection, operation and maintenance program. ~~This does not apply to single family dwellings.~~ Disinfection, operation and maintenance procedures shall at a minimum include:

1) Establishment of minimum concentrations of disinfectant as appropriate;

2) A monitoring schedule for disinfectant, pH, alkalinity, temperature and visual inspection as appropriate;

3) Procedures for regular cleaning of debris and organic matter;

4) Pump and filter maintenance in accordance with manufacturers' recommendations and specifications; and

5) Procedures for draining, cleaning, disinfecting, and refilling the fixture after periods of nonuse exceeding 72 hours prior to returning the fixture to operation.

e) Building owners, representatives of building owners, tenants, or their designees ~~Owners and operators~~ shall maintain records for the disinfection, operation and maintenance program for at least 3 years. These records shall include, but are not limited to, the disinfection and maintenance schedule, maintenance and disinfection records, and any associated sampling and analyses if a sampling plan is in place. The records shall be made available to the Department upon request. ~~This does not apply to single family dwellings.~~

~~f) Decorative fountains and aesthetic water fixtures shall not be installed in food establishments.~~

f~~g~~) Decorative fountains and aesthetic water fixtures shall not be installed in health care facilities subject to the Ambulatory Surgical Treatment Center Act, Hospital Licensing Act, Nursing Home Care Act, Assisted Living and Shared Housing Act or Community Mental Health Act.

g~~h~~) Decorative fountains and aesthetic water fixtures shall not be installed as part of a building's humidification system.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.2030 Response to Water Outages and Boil Orders

a) Health Care Facilities Subject to the Ambulatory Surgical Treatment Center Act, Hospital Licensing Act, Nursing Home Care Act, Assisted Living and Shared Housing Act, or Community Mental Health Act

1) Upon becoming aware of a water outage or drop in system pressure below 20 psi, the facility owner or operator shall:

A) Take measures to isolate the facility water ~~distribution~~supply system from the water main~~service~~;

B) Cease to open or operate plumbing fixtures during the outage; and

C) Maintain the building water ~~distribution~~supply system full of water to reduce the amount of trapped air and scale delamination resulting from the outage.

2) Upon notification of a boil order from the water supplier, the facility owner or operator shall:

A) Notify building occupants in writing, through postings or warning signs, that water from the tap is not fit for consumption;

B) Contact the water supplier to obtain ~~data~~information on the potable water quality, including disinfectant levels in the general location of the facility~~at the service entrance to the facility~~;

C) Upon re-establishment of potable service as announced by the water supplier, the facility shall flush the water ~~distribution~~supply system to clear out any~~the~~ stagnant water in the plumbing and flush any non-potable water remaining in the water service piping ~~or main in the street or right of way~~. To protect building occupants~~patients and residents~~, flushing shall not occur in occupied rooms or areas;

D) Assess the quality of both the water in the plumbing system and the incoming water. The facility shall, at a minimum, assess the concentration of the residual disinfectant, and collect one water sample at the water service entrance ~~to be analyzed for total coliforms. Samples should be submitted to laboratories certified for the analysis of coliforms in drinking water in accordance with accreditation requirements developed by a national accreditation body, such as the National Environmental Laboratory Accreditation Conference (NELAC) Institute (TNI)~~; and

E) Implement enhanced water quality monitoring~~surveillance~~ for at least 7 days before returning to monitoring in accordance with~~surveillance require by~~ the mandated facility water ~~quality~~ management plan.

b) Food Establishments
Upon notification of a boil order from the water supplier, the facility owner or operator shall:

1) Contact the certified local health department having jurisdiction regarding operational conditions and requirements, including requirements to close the food establishment;

2) Contact the water supplier to obtain ~~data~~information on the potable water quality, including disinfectant levels at the service entrance to the facility; and

3) Upon re-establishment of potable service as announced by the water supplier, the facility shall flush the water distribution system to clear out the stagnant water in the plumbing and flush any non-potable water remaining in the water service piping ~~or main in the street or right of way~~.

c) Non-residential Buildings, Including, But Not Limited to, Universities, K-12 Schools and Daycares
Upon notification of a boil order from the water supplier, the facility owner or operator shall:

1) Notify building occupants in writing, through postings or warning signs, that water from the tap is not fit for consumption;

2) Contact the water supplier to obtain information~~data~~ on the potable water quality, including disinfectant levels at the service entrance to the facility; and

3) Upon re-establishment of potable service as announced by the water supplier, the facility shall flush the water supply~~distribution~~ system to clear out the stagnant water in the plumbing and flush any non-potable water remaining in the water service piping ~~or main in the street or right of way~~. To protect building occupants~~patients and residents~~, flushing shall not occur in occupied rooms or areas.

(Source: Added at 43 Ill. Reg. _____, effective _____)

~~SUBPART O: HARVESTED WATER SYSTEMS~~

~~**Section 890.3000 On-Site Collected Rainwater and Stormwater**~~

~~This Section shall apply to the design, installation, construction, alteration, operation, maintenance, or repair of rainwater and stormwater harvesting systems intended to supply applications such as water closets, urinals, and lawn sprinkler systems with sprinkler heads at single family dwellings, multi-family dwellings, and non-residential buildings.~~

~~a) Rainwater harvesting systems shall be designed in accordance with CSA B805-17/ICC 805-2017 based upon end use application.~~

~~b) The plans and specifications for a rainwater harvesting system shall be submitted to the Department for approval before installation in accordance with Section 890.1940 when:~~

1) System collection and storage is more than 5,000 gallons of harvested rainwater storage;

2) End use applications of the system are not considered under CSA B805-17/ICC 805-2017; or

3) Populations potentially impacted by the end use of the on-site rainwater harvesting systems are considered at-risk.

c) Rainwater collected solely for subsurface irrigation, drip irrigation, or non-aerosolized surface applications shall comply with Section 890.3050.

d) Owners of rainwater harvesting systems shall maintain records of maintenance and operation and those records shall be made available to the Department or authorized unit of local government upon request. These records shall be maintained with the system for a period of not less than five years.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.3010 On-Site Collected Graywater

This Section shall apply to the design, installation, construction, alteration, operation, maintenance, or repair of graywater harvesting systems intended to supply applications such as water closets, urinals, and lawn sprinkler systems with sprinkler heads at single family dwellings, multi-family dwellings, and non-residential buildings.

a) Graywater harvesting systems shall be designed in accordance with NSF/ANSI 350 and 350-1 based upon end use application.

b) The plans and specifications for graywater harvesting systems shall be submitted to the Department for approval prior to installation in accordance with Section 890.1940 when:

1) System collection and storage is more than 200 gallons per day of harvested graywater storage;

2) End use applications of the system are not considered under NSF/ANSI 350 and 350-1; or

3) Populations potentially impacted by the use of on-site graywater harvesting systems are considered at-risk.

c) Graywater collected solely for subsurface irrigation, drip irrigation, or non-aerosolized surface applications shall comply with Section 890.3050.

d) Owners of graywater harvesting systems shall maintain records of maintenance and operation and such records shall be made available to the Department or authorized unit of local government upon request. These records shall be maintained with the system for a period of not less than five years.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.3020 Reclaimed Water Applications

a) Producers and users of reclaimed water may develop standards based on fitness for intended use. Those requirements are not subject to the requirements of this Subpart except when the public may be exposed to reclaimed water via potential ingestion, inhalation or skin contact.

b) All harvested systems using reclaimed water that may result in public exposure to harvested water shall be submitted to the Department for approval prior to installation of those systems in accordance with Section 890.1940.

c) Responsible parties for reclaimed water shall take all necessary precautions to prevent public exposure to reclaimed water to protect the public health.

d) Producers of reclaimed water, such as units of local government, may establish agreements to provide or sell reclaimed water. The Department shall be notified of reclaimed water purchase agreements when water quantities provided are greater than 50,000 gallons per day, 250,000 gallons per month, or 5,000,000 gallons per year.

e) Producers and users of reclaimed water shall maintain records of water purchase agreements and quantities sold or transferred for at least 5 years. Those records shall be made available to the Department or authorized unit of local government upon request.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.3030 On-Site Collected Blackwater

Any plumbing system designed to collect, convey, store, treat and distribute blackwater shall be submitted to the Department for approval prior to installation of that system, in accordance with Section 890.1940.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.3040 Harvested Water System Isolation

All systems utilizing harvested water shall be isolated from potable water systems in accordance with Section 890.1130.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.3050 Harvested Water Systems for Subsurface Irrigation

Harvested water collected solely for the purpose of subsurface irrigation, drip irrigation, or non-aerosolized surface applications are not subject to the requirements of Sections 890.3010 and 890.3020. Responsible parties for subsurface irrigation applications using harvested water shall take all necessary precautions to prevent public exposure and to protect public health. Irrigation systems shall be installed in accordance with the Lawn Irrigation Contractor and Lawn Sprinkler System Registration Code.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.3060 Combined Source Harvested Water Systems

All harvested water systems designed to collect and store more than one type of harvested water shall limit end use of the harvested water to the most restrictive application described in the applicable standards.

(Source: Added at 43 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE A Approved Materials and Standards

All materials shall meet at least one of the approved standards listed.

Approved Building Drainage/Vent Pipe

1)	Acrylonitrite Butadiene Styrene (ABS) Pipe	ASTM D 2661-2011 ASTM F 628-2012 CSA B181.1-2011 in B1800
	Joints	ASTM D 2235-2011 CSA B602-2010
	Solvent Cement[1]	ASTM D 2235-2011 ASTM D 3138-2011 CSA B181.1-2011 in B1800
2)	Brass Pipe	ASTM B 43-2009
3)	Cast Iron Pipe	ASTM A 74-2009 ASTM A 888-2011 ASTM C 564-2012 CISPI 301-2009 CSA B70-2012 FM 1680-1989
4)	Chlorinated Polyvinyl Chloride (CPVC) (Pipe and Fittings for Chemical Waste Drainage Systems)	ASTM F2618-2009
5)	Copper/Copper Alloy Pipe	ASTM B 42-2010 ASTM B 302-2012
6)	Copper/Copper Alloy Tubing (K-L-M or DWV)[2]	ASTM B 75/B75M-2011 ASTM B 88-2009 ASTM B 251-2010 ASTM B 306-2009
~~7)~~	~~Galvanized Steel Pipe[2]~~	~~ASTM A 53/A53M-2012~~
78)	Glass Fiber Borosilicate Pipe[3]	ASTM C 1053-2010

8~~9~~)	High Silicon Content Cast Iron Pipe[3]	ASTM A 377-2008e1 CSA B70-2012
9~~10~~)	Polypropylene Pipe[3]	CSA B137.1-2009 in B137
10~~11~~)	Polyvinyl Chloride (PVC) Pipe and Fittings	ASTM D 2665-2012 ASTM D 2949-2010 CSA B137.2-2009 in B137 CSA B181.2-2011 in B1800
11~~12~~)	Polyvinyl Chloride (PVC) Pipe with Cellular Core[4]	ASTM F891-2010 ASTM F1760-2011
	Joints	ASTM D 2855-2010
	Primer	ASTM F 656-2010
	Solvent Cement[1]	ASTM D 2564-2012 ASTM D 3138-2011
12~~13~~)	Polyvinylidene Fluoride[3]	ASTM D 3222-2010
13~~14~~)	Solder	ASTM B 32-2008
14~~15~~)	Stainless Steel – types 304 and 316L	ASME A112.3.1-2007 (R2012)
15~~16~~)	Stainless Steel Buttweld Fittings	ASTM A 403/A 403M-2012 ASTM A 774/A 774M-2009
16~~17~~)	Stainless Steel Flanges	ASTM A 2400/A 240M-2012a
17~~18~~)	Identification of Piping Systems	ASME A13.1-2007

Agency Notes:

[1] Solvent cement must be handled in accordance with ASTM F 402-1993.
[2] Type M copper tubing and~~,~~ DWV copper tubing~~, and galvanized steel pipe~~ are approved for above-ground uses only.
[3] Approved for corrosive waste or corrosive soil conditions.
[4] PVC pipe with cellular core is approved only for gravity drainage and venting.
[5] ASME B.1.20.1-1983

Approved Materials for Building Sewer

1)	Acrylonitrite Butadiene Styrene (ABS) Pipe	ASTM D 2661-2011

		ASTM D 2751-2005 ASTM F 628-2012 CSA B181.1-2011 in B1800
	Joints	ASTM D 2235-2011 CSA B602-2010
	Solvent Cement[1]	ASTM D 2235-2011 ASTM D 3138-2011 CSA B181.1-2011 in B1800
2)	Asbestos Cement Pipe	ASTM C 428/C 428M-2011e1 CSA B127.1-1999 (R2009)
3)	Cast Iron Soil Pipe/Fittings	ASTM A 74-2009 CSA B70-2012
	Hubless Soil Pipe	CISPI 301-2009 CISPI 310-2011 CSA B70-2012 FM 1680-1989
	Rubber Gaskets	ASTM C 564-2012 ASTM D 4161-2010 CSA B70-2012 CSA B602-2010
4)	Copper/Copper Alloy Tubing	ASTM B 88-2009
5)	Concrete Pipe	ASTM C 14-2011 ASTM C 76-2013 ASTM C 443-2012 CSA B602-2010
6)	High-Density Polyethylene (HDPE) Pipe	ASTM D 3350-2012
7)	Polyvinyl Chloride (PVC) Pipe	ASTM F 1866-2007 ASTM D 2665-2012 ASTM D 2949-2010 ASTM D 3034-2008 CSA B182.1-2011 in B1800 CSA B182.2-2011 in B1800 CSA B182.4-2011 in B1800 CSA B181.2-2011 in B1800
	Joints	ASTM D 2855-2010 ASTM D 3212-2013 CSA B602-2010

	Primer	ASTM F 656-2010
	Solvent Cement[1]	ASTM D 2564-2012 ASTM D 3138-2011 CSA B181.2-2011 in B1800
8)	Polyvinyl Chloride (PVC) Pipe with Cellular Core[2]	ASTM F 891-2010
	Joints	ASTM D 2855-2010 ASTM D 412-2006ae2
	Primer	ASTM F 656-2010
	Solvent Cement[1]	ASTM D 2564-2012 ASTM D 3138-2011
9)	Solder	ASTM B 32-2008
10)	Vitrified Clay Pipe[2]	ASTM C 4-2009 ASTM C 700-2013 ASTM C 425-2009
11)	Polypropylene Pipe[2]	ASTM F 2389-2010 AWWA C901-2008 AWWA C906-2012 (Material Code PE3408)[3] (Material Codes PE2406 and PE3406)[4]
12)	Identification of Piping Systems	ASME A13.1-2007

Agency Notes:

[1] Solvent cement must be handled in accordance with ASTM F 402-1988.
[2] PVC pipe with cellular core and vitrified clay pipe are approved only for gravity drainage.
[3] Dimension Ratio (DR) 17 or less.
[4] Dimension Ratio (DR) 13.5 or less.

Approved Materials for Water Service Pipe

1)	Acrylonitrite Butadiene Styrene (ABS) Pipe[2]	ASTM D 1527-2005
	Joints	ASTM D 2235-2011
	Solvent Cement[1]	ASTM D 2235-2011
2)	Brass Pipe[2]	ASTM B 43-2009

3)	Cast Iron (ductile iron)[2] Water Pipe	ASTM A 377-2008e1 CSA B70-2012 AWWA C151-2009
4)	Chlorinated Polyvinyl Chloride (CPVC) Pipe[2]	ASTM D 2846/D 2846M-2009be1 ASTM F 441/F 441M-2012 ASTM F 442/F 442M-2012 CSA B137.6-2009 in B137
	Joints	ASTM D 2846/D 2846M-2009be1 CSA B137.6-2009 in B137
	Solvent Cement[1]	ASTM F 493-2010 CSA B137.6-2009 in B137
5)	Copper/Copper Alloy Pipe[2, 3]	ASTM B 42-2010 ASTM B 302-2012
6)	Copper/Copper Alloy Tubing[2,3]	ASTM B 88-2009
~~7)~~	~~Galvanized Steel Pipe[2]~~	~~ASTM A 53/A 53M-2012~~
~~8)~~	~~Poly Butylene (PB) Pipe/Tubing[2]~~	~~CSA B137.8-2009 in B137~~
7~~9~~)	Polyethylene (PE) Pipe[2]	ASTM D 2239-2012a AWWA C901-2008 AWWA C906-2012 (Material Code PE3408)[4] (Material Codes PE2406 and PE3406)[5]
8~~10~~)	Polyethylene (PE) Tubing[2]	ASTM D 2737-2012a CSA B137.1-2009 in B137
9~~11~~)	Polypropylene Pipe[2]	ASTM F 2389-2010
10~~12~~)	Polyvinyl Chloride (PVC) Pipe[2]	ASTM D 1785-2012 ASTM D 2241-2009 ASTM D 2672-2009 ASTM F 477-2010 AWWA C900-2007 CSA B137.3-2009 in B137

	Joints	ASTM D 2855-2010 ASTM D 3139-2011 CSA B137.2-2009 in B137 CSA B137.3-2009 in B137
	Primer Solvent Cement[1]	ASTM F 656-2010 ASTM D 2564-2012 CSA B137.3-2009 in B137
11~~13~~)	Stainless Steel Pipe[2]	ASTM A 312/A 312M-2012a ASTM A 403/A 403M-2012 ASTM A 511/A 511M-2012
12~~14~~)	Welded Copper Water Tube[2]	ASME B31.1-2012 ASTM B 447-2012a WK and WL
13~~15~~)	Solder	ASTM B 32-2008

Agency Notes:

[1] Solvent cement must be handled in accordance with ASTM F 402-1988.
[2] Water service pipe must meet the appropriate NSF standard for potable water.
[3] Type K or L copper may be installed underground.
[4] Dimension Ratio (DR) 17 or less.
[5] Dimension Ratio (DR) 13.5 or less.
[6] ASME B.1.20.1-1983.

Approved Materials for Water Distribution Pipe

1)	Brass Pipe[2]	ASTM B 43-2009
2)	Chlorinated Polyvinyl Chloride[2] (CPVC) Pipe/Tubing	ASTM D 2846/D 2846M-2009be1 ASTM F 441/F 441M-2012 ASTM F 442/F 442M-2012 CSA B137.6-2009 in B137
	Joints	ASTM D 2846/D 2846M-2009be1 CSA B137.6-2009 in B137
	Solvent Cement[1]	ASTM F 493-2010 CSA B137.6-2009 in B137

3)	Copper/Copper Alloy Pipe[2]	ASTM B 42-2010 ASTM B 302-2012 AWWA C606-2011
4)	Copper/Copper Alloy Tubing[2]	ASTM B 88-2009
5)	Cross Linked Polyethylene[2] Distribution Systems	ASTM F 876-2017~~2013a~~ ASTM F 877-2017~~2011a~~ AWWA C904-2018
	Joints	ASTM F 1807-2012 ASTM F 1960-2019~~2012~~ ASTM F 2080-2012 ASTM F 2098-2008 ASTM F 2159-2011 ASSE 1061-2011 CSA B137.5-2009 in B137
~~6)~~	~~Galvanized Steel Pipe[2]~~	~~ASTM A 53-2012~~ ~~AWWA C606-2011~~
~~7)~~	~~Poly Butylene (PB) Pipe/Tubing[2]~~	~~CSA B137.8-2009 in B137~~
6~~8~~)	Polypropylene Pipe[2]	ASTM F 2389-2010
7~~9~~)	Polyvinyl Chloride (PVC) Pipe[2, 3]	ANSI/NEMA Z535.1-2006 (R2011) ASTM D 1785-2012 ASTM D 2241-2009 ASTM D 2672-2009 CSA B137.3-2009 in B137
	Joints	ASTM D 2855-2010 ASTM F 441/F 441M-2012 CSA B137.2-2009 in B137 CSA B137.3-2009 in B137
	Primer Solvent Cement[1]	ASTM F 656-2010 ASTM D 2564-2012 CSA B137.3-2009 in B137
8~~10~~)	Stainless Steel Pipe[2]	ASTM A 312/A 312M-2012 ASTM A 403/A 403M-2012 ASTM A 511/A 511M-2012

	9~~11~~)	Welded Copper Water Tube[2]	ASTM B 447-2012a WK, WL and WM
	10~~12~~)	Solder	ASTM B 32-2008

Agency Notes:

[1] Solvent cement must be handled in accordance with ASTM F 402-1988.
[2] Water distribution pipe must meet the appropriate NSF standard for potable water. Plastic shall be rated at 160 psi at 73.4 degrees Fahrenheit.
[3] Use for cold or tempered water only.
[4] ASME B.1.20.1-1983.
[5] Safety Color.

Approved Materials and Standards for Plumbing Fixtures and Fixture Fittings

1)	Bathtub Liners (plexiglass/ABS or acrylic/plastic)	IAPMO/ANSI Z124.8-2013
2)	Bathtubs, Plastic	CSA B45.5-2011/IAPMO Z124-2011
3)	Bidets	ASME A112.19.2-2013/CSA B45.1-2013
4)	Enameled Cast Iron and Enameled Steel Plumbing Fixtures	ASME A112.19.1-2008/CSA B45.2-2008
5)	Fittings: Plumbing Fixture Fittings (metering valves, faucets, etc.)	ASME A112.18.1-2012/CSA B125.1-2012
	Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathtub Appliances	ANSI/APSP 16-2011 CSA C22.2 No. 218.1-M1989 (R2011) CSA C22.2 No. 218.2-1993 (R2008)
6)	Floor Drains and Trench Drains	ASME A112.6.3-2001 (R2007) CSA B79-2008
7)	Flushometer Bowls	ASME A112.19.2-2013/CSA B45.1-2013
	Flushometers	CSA B125.3-2011 ASSE 1037-2015~~1990~~/ASME

		A112.1037-2015/CSA B125.37-15 CSA B125.3-2011
8)	Grease Interceptors	ASME A112.14.3-2000 (R2004)
9)	Low Consumption (1.6 gpf) Water Closets[1]	ASME A112.19.2-2013/CSA B45.1-2013 ASME A112.19.14-2006 (R2-11)
10)	Plastic Lavatory	CSA B45.5-2011/IAPMO Z124-2011
11)	Plastic Shower Receptors/Shower Stalls	CSA B45.5-2011/IAPMO Z124-2011
12)	Plastic Water Closets Bowls/Tanks	CSA B45.5-2011/IAPMO Z124-2011
13)	Plastic Urinals Fixtures	CSA B45.5-2011/IAPMO Z124-2011
14)	Porcelain Enameled Formed Steel Plumbing Fixtures, including Bathtub Liners	ASME A112.19.1-2008/CSA 45.2-2008
15)	Stainless Steel Plumbing Fixtures (Residential)	ASME A112.19.3-2008/CSA B45.4-2008
16)	Vitreous China Plumbing Fixtures	ASME A112.19.2-2013/CSA B45.1-2013
17)	Vitreous China Nonwater Urinals	ASME A112.19.19-2006 (R2011)
18)	Whirlpool Bathtub Appliances	ASME A112.19.7-2012/CSA B45.10-2012 CSA C22.2 No. 218.2-1993 (R2008)

Agency Note:

The water pressure at each fixture installation shall meet the manufacturer's minimum recommended level for the fixture.

Approved Standards for Plumbing Appliances/Appurtenances/Devices

1)	Anti-Backflow Freezeless Wall Hydrants	ASSE 1019-2011 ASME A112.18.1-2012/CSA B125.1-2012

2)	Anti-Scald Control Valve	ASSE 1016-20172011/ASME A112.1016-2011/CSA B125.16-20171
3)	Anti-siphon Self-Drain Frost Proof Sillcock	ASSE 1019-2011(R2016) CSA B125.3-2012
4)	Automatic Ice Making Equipment	NSF/ANSI 12-2009 CSA C22.2 No. 120-M1991 (R2008)
5)	Automatic Storage Type Water Heater Less Than 75,000 BTU/HR	ANSI Z21.10.1-2009/CSA 4.1-2009 ASHRAE 90.1 2010 ASHRAE 90.2-2007 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ANSI Z21.10.1b-2011/CSA 4.1b-2011
6)	Back Water Valves	ASME A112.14.1-2003 (R2012) CSA B181.1-2011 in B1800 CSA B181.2-2011 in B1800 CSA B182.1-2011 in B1800 CSA B70-2012
7)	Circulating Tank, Instantaneous	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ANSI Z21.10.1b-2011/CSA 4.1b-2011 ANSI Z21.10.3-2011/CSA 4.3-2011 ANSI Z21.13-2010/CSA 4.9-2010 ANSI Z21.13a-2010/CSA 4.9a-2010 ANSI Z21.13b-2012/CSA 4.9b-2012 CSA B140.12-2003 (R2008) CSA C22.2 No. 110-1994 (R2009) UL 499-2005

8)	Circulating Tank, Instantaneous, Automatic	ANSI Z21.10.3-2011/CSA 4.3-2011 ANSI Z21.13-2010/CSA 4.9-2010 ANSI Z21.13a-2010/CSA 4.9a-2010 ANSI Z21.13b-2012/CSA 4.9b-2012 UL 174-2004 CSA 4.1-2011 CSA B140.12-2003 (R2008) CSA C22.2 No. 110-1994 (R2009)
9)	Detergent/Chemical Feeders for Commercial Use	ASSE 1055-2018~~2009~~ CSA C22.2 No. 0-2010 CSA C22.2 No. 0.4-2004 (R2009) CSA C22.2 No. 68-1992 (R2008) CSA C22.2 No. 142-M1987 (R2009)
10)	Dishwashing Machine (Commercial)	ASSE 1004-2016~~2008~~ ANSI Z83.21-2005/CSA C22.2 No. 168-2005 ANSI Z83.21a-2012/CSA C22.2 No. 168a-2012 CSA C22.2 No. 0-2010 CSA C22.2 No. 0.4-2004 (R2009)
11)	Dishwashing Machine (Residential)	ASSE 1006-1986 (R1989) CSA C22.2 No. 167-2008
12)	Diverters for Residential – Anti-Siphon	ASME 1112.18.1-2012/CSA B125.1-2012
13)	Double Check Detector Assembly	ASSE 1048-2011 CSA B64-2011
14)	Double Check With Atmospheric Vent	ASSE 1012-2009 CSA B64-2011
15)	Double Check Valve Assembly	ASSE 1015-2011 CSA B64-2011

16)	Drinking Fountains	ASHRAE 18-2008 (R2013) UL 399-2008 ASME A112.19.2-2013/CSA 45.1-13
17)	Drinking Water Treatment Units – Health Effects	NSF/ANSI 53-2018~~2011a~~
18)	Drinking Water Treatment Units – Aesthetic Effects	NSF/ANSI 42-2018~~2011~~
19)	Drinking Water Treatment Chemicals	NSF/ANSI/Can 60-2018/NSF/ANSI/CAN 600-2018~~2012~~
20)	Dual Check Valve	ASSE 1024-2004 CSA B64-2011
21)	Du~~a~~el Check Valve (Carbonated Beverage) (Relief Port Required)	ASSE 1022-2003 CSA B64-2011
22)	Food Waste Disposal (Commercial)	ASSE 1009-1990 CSA C22.2 No. 1-2010 CSA C22.2 No. 68-1992
23)	Food Waste Disposal (Residential)	ASSE 1008-2006 CSA C22.2 No. 0-2010 CSA C22.2 No. 68-2008
24)	Gas Water Heater Above 75,000 BTU	ANSI Z21.10.3-2011/CSA 4.3-2011
25)	Gas Water Heater 75,000 BTU or Less	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ANSI Z21.10.1b-2011/CSA 4.1b-2011
26)	Gas Water Heater (Continuous Use)	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009

		ANSI Z21.10.1b-2011/CSA 4.1b-2011
27)	Gas Water Heater – Space Heating	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ANSI Z21.10.1b-2011/CSA 4.1b-2011
28)	Grease Interceptors	PDI-G 101-2010 ASME A112.14.3-2000 (R2004)
29)	Handheld Showers	ASSE 1014-2005 ASSE 1016-2017~~2011~~/ASME A112.1016-2011/CSA B125.16-2017~~11~~
30)	Home Laundry Equipment	ASSE 1007-1986 (R1992) CSA C22.2 No. 0-2010 CSA C22.2 No. 0.4-2004 (R2009) CSA C22.2 No. 169-1997 (R2012)
31)	Hot Water Dispensers-Electrical	ASSE 1023-1979 CSA C22.2 No. 64-2010
32)	Hot Water Generating/Heat Recovery Equipment	NSF/ANSI 5-2012
33)	Ice Makers	UL 563-2009 CSA B45-2008 CSA C22.2 No. 0-2010 CSA C22.2 No. 0.4-2004 (R2009) CSA C22.2 No. 63-1993 (R2008) CSA C22.2 No. 120-M1991 (R2008)
34)	Individual Pressure Balancing In-line valves for individuals fixture fittings	ASSE 1066-1997
35)	Mixing Valves	ASSE 1016-2011/ASME
	Automatic Compensating Valves for Individual Shower and Tub/Shower Combinations	A112.1016-2017~~11~~/CSA B125.16-2017~~11~~

	Temperature Actuated Mixing Valves for Hot Water Distribution ~~Temperature Actuated Mixing Valves for Hot Water Distribution~~	ASSE 1017-2009 ~~ASSE 1017-2009~~
	Automatic Temperature Control Mixing Valves	ASSE 1069-2005
	Water Temperature Limiting Devices	ASSE 1070-2015/ASME A112.1037-2015/CSA B125.37-15~~2004~~
	Mixing Valves for Plumbed Emergency Equipment	ASSE 1071-2012
36)	Oil Fired Water Heaters	UL 732-2010 CSA B140.0-2003 (R2008) CSA B140.12-2003 (R2008) CSA C22.2 No. 0-2010 CSA C22.2 No. 3-M1988 (R2009)
37)	Pressure Relief Valve	ANSI Z21.22-1999 (R2008)/CSA 4.4-M1999 (R2008) ANSI Z21.22a-2000 (R2008)/CSA 4.4a-2000 (R2008) ANSI Z21.22b-2001 (R2008)/CSA 4.4b-2001 (R2008)
38)	Pressurized Flushing Device	ASSE 1037-2015/ASME A112.1037-2015~~1990~~
39)	Reduced Pressure Detector Assembly	ASSE 1047-2011 CSA B64-2011
40)	Reduced Pressure Principle Backflow Preventer	ASSE 1013-2011 CSA B64-2011
41)	Refuse Compactors/Compactor System	NSF/ANSI 13-2012 CSA C22.2 No. 0-2010 CSA C22.2 No. 68-2008
42)	Relief Valves For Hot Water System	ANSI Z21.22-1999 (R2008)/CSA 4.1-M1999 (R2008)

		ANSI Z21.22a-2000 (R2008)/CSA 4.4a-2000 (R2008) ANSI Z21.22b-2001 (R2008)/CSA 4.4b-2001 (R2008)
43)	Reverse Osmosis Drinking Water Treatment System	NSF/ANSI 58-2012
44)	Spray Type Dishwashing Machine for Commercial Use	NSF/ANSI 3-2012 CSA C22.2 No. 0-2010 CSA C22.2 No. 0.4-2004 (R2009) ANSI Z83.21-2005/CSA C22.2 No. 168-2005 ANSI Z83.21a-2012/CSA C22.2 No. 168a-2012
45)	Trap Seal Primer Valve	ASSE 1018-2001 CSA B125.3-2012
46)	Vacuum Breakers, Anti-siphon	ASSE 1001-201708 CSA B64-2011
47)	Vacuum Breakers Hose Connection	ASSE 1011-2004 CSA B64-2011
48)	Vacuum Breaker (Laboratory Faucet)	ASSE 1035-2008 CSA B64-2011
49)	Vacuum Breakers Pressure Type	ASSE 1020-2004 CSA B64-2011
50)	Vacuum Relief Valve	ANSI Z21.22b-2001 (R2008) CSA B64-2011
51)	Vending Machine for Food/Beverage	NSF/ANSI 25-2012 CSA C22.2 No. 0-2010 CSA C22.2 No. 120-M1991 (R2008) CSA C22.2 No. 128-1995 (R2009) ASSE 1002-2008
52)	Water Closet Personal Hygiene Devices	ASME A112.4.2-2009

53)	Water Closet Tank Ballcock	ASSE 1002-2015/ASME A112.1002-2015/CSA B125.12-1508 CSA B64-2011 CSA B125.3-2012
54)	Water Hammer Arresters	ASSE 1010-2004
55)	Water Heater Drain Valve	ASME A121.18.1-2011/CSA B125.1-2011
56)	Water Pressure Reducing Valves (Domestic)	ASSE 1003-2009 CSA B356-2010
57)	Water Softening EquipmentSoftener and Treatment Devices	NSF/ANSI 44-2012
58)	Drinking Water System Component	NSF/ANSI 61-2016
59)	Drinking Water System Components – Lead Content	NSF/ANSI 372

Approved Standards for Fittings

1)	Cast Iron Threaded Drainage Fittings	ASME B16.12-2009
2)	Cast Copper Alloy Solder Pressure Fittings	ASME B16.18-2012
3)	Cast Copper Alloy Solder Drainage Fitting (DWV)	ASME B16.23-2011
4)	Copper Fittings	ASME B16.15-2011 ASME B16.51-2011 ASME B16.18-2012 ASME B16.22-2012 ASME B16.23-2011 ASME B16.26-2011 ASME B16.29-2012 NSF/ANSI 61-2012
5)	Forged Steel Fittings, Socket, Welded, Threaded	ASME B16.11-2011
6)	Gray Iron/Ductile Iron	AWWA C 110-2009 AWWA C 151-2009

7)	Malleable Iron	ASME B 16.3-2011
8)	Plastic	ASTM D 2466-2006 ASTM D 2467-2006 ASTM D 2564-2012 ASTM F409-2012 ASTM F438-2009 ASTM F439-2012 CSA B137.3-2009 in B137 CSA B181.2-2011 in B1800 CSA B182.1-2011 in B1800 CSA B137.6-2009 in B137 CSA B137.6-1999 in B137
9)	Plumbing Fixture Fittings (Metering valves, faucets, etc.)	ASME A112.18.1-2012/CSA B125.1-2012
10)	Steel	ASME B 16.9-2012 ASME B 16.11-2011
11)	Wrought Copper/Bronze Solder Pressure Fitting	ASME B 16.22-2012
12)	Wrought Copper and Wrought Copper Alloy Solder (Drainage Fittings)	ASME B16.29-2012 ASME B16.22-2012
13)	Wrought Steel Buttwelding Fittings	ASME B16.9-2012
14)	Wrought Steel Buttwelding Short Radius Ells	ASME B16.9-2012

~~Approved Standards for Harvested Water Systems~~

~~1)~~	~~Rainwater Harvesting Systems (except references to the use of harvested water in decorative fountains and references to the 2015 International Plumbing Code)~~	~~CSA B805-2018/ICC 805-2018~~
~~2)~~	~~Graywater Harvesting Systems (except references to the use of harvested water in decorative fountains and car washing and the use of blackwater)~~	~~NSF/ANSI 350~~ ~~NSF/ANSI 350-1~~

(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION K Dead End (Repealed

~~(Referenced in Section 890.120, Definition of "Dead End.")~~

(Source: Repealed at 43 Ill. Reg. _____, effective _____)

Section 890.APPENDIX C Illustrations for Subpart C

Section 890.ILLUSTRATION A Caulked Joints (Repealed)

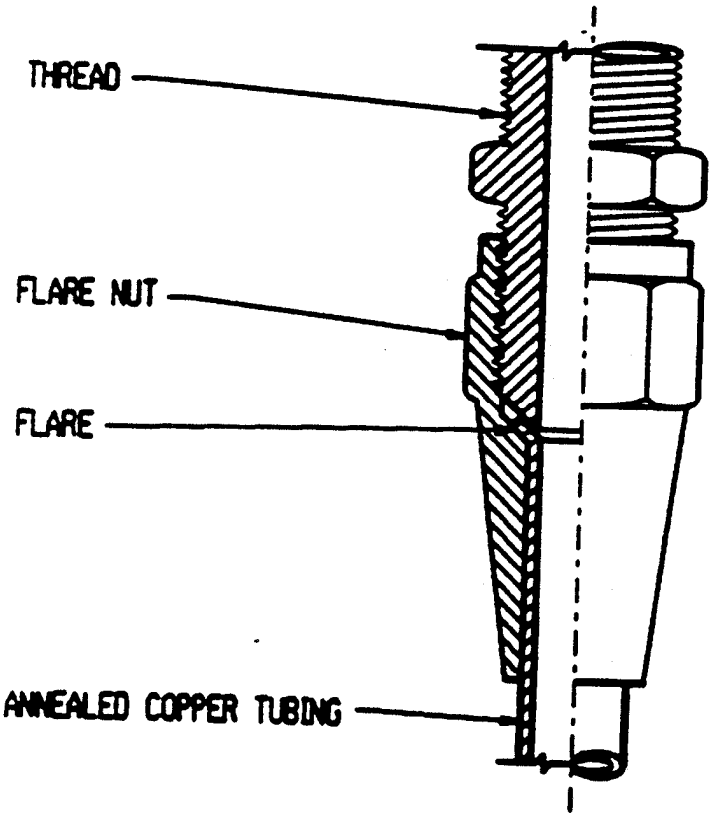
~~(Referenced in Section 890.320(a))~~

(Source: Repealed at 43 Ill. Reg. _____, effective _____)

Section 890.APPENDIX C Illustrations for Subpart C

Section 890.ILLUSTRATION B Flared Joints

~~(Referenced in Section 890.320(e))~~

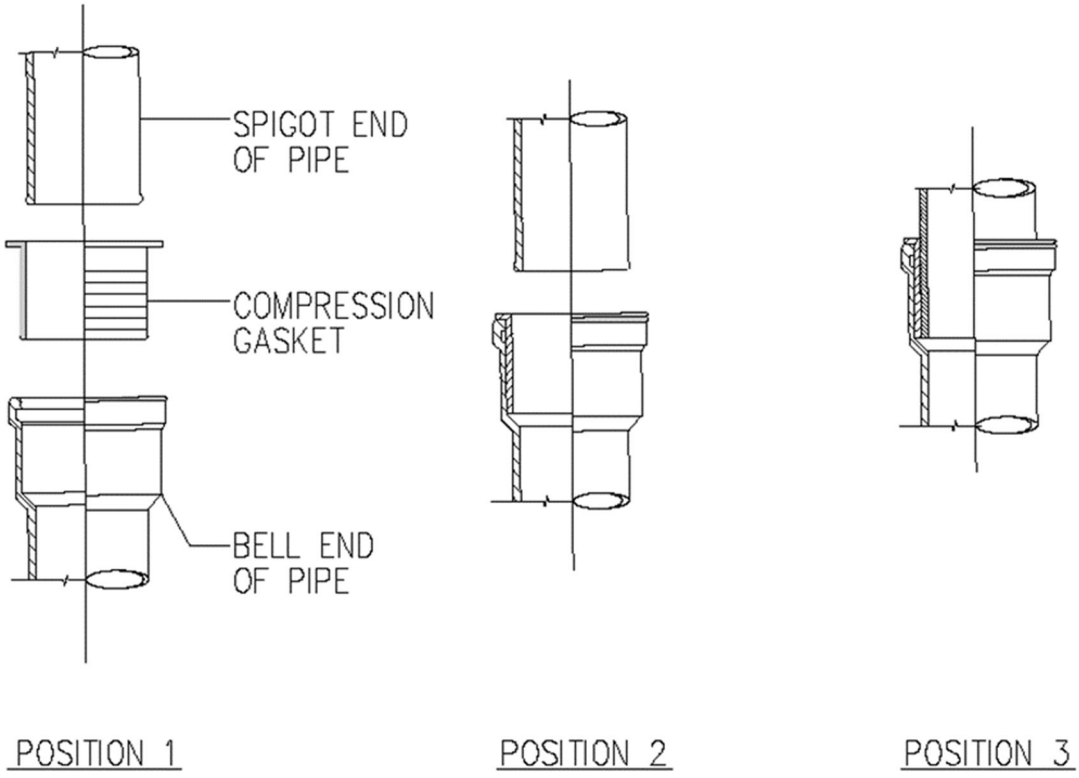


(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.APPENDIX C Illustrations for Subpart C

Section 890.ILLUSTRATION C Positions of Application for Compression Type Joints

~~(Referenced in Section 890.320(o)(1))~~



(Source: Amended at 43 Ill. Reg. _____, effective _____)