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5 PART 890
6 ILLINOIS PLUMBING CODE
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351
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354

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365 effective April 8, 2005; amended at 38 Ill. Reg. 9940, effective April 24, 2014; amended at 43
366 Ill. Reg. _____, effective _____.

367
368 SUBPART A: DEFINITIONS AND GENERAL PROVISIONS
369

370 **Section 890.120 Definitions**
371

372 For the purpose of administering and enforcing this Part, the following terms, which consist of
373 words or expressions that have a precise meaning in plumbing, shall have the meaning indicated.
374 Refer to Appendix A for standards applicable to plumbing appurtenances and fixtures defined in
375 this Section.
376

377 "Abut" or "Abutting": To border, to touch, to terminate at point of contact,
378 adjacent.
379

380 "Accessible": Easily approached or entered with minor modifications, such as the
381 removal of an access panel, door or similar obstruction (e.g., drywall, gypsum
382 board, plasterboard, or paneling). Concrete, asphalt and ceramic tile are not
383 considered accessible.
384

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

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"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.

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

434
435 "Back Siphonage": A condition caused when a negative force or vacuum is
436 exerted and reverses the flow of gas, water or air to a direction opposite the
437 intended normal direction of flow.

438
439 "Back Siphonage Preventer": A device designed to prevent reverse flow in a
440 water system, specifically back siphonage. The device should be used only where
441 no back pressure may occur.

442
443 "Back Water Valve": A device or valve that is installed in a sanitary sewer, storm
444 drain or storm sewer to prevent sewage or drainage from backing up.

445
446 "Backflow": The reversal of flow from that normally intended. Hydraulic
447 conditions that cause backflow include back siphonage, back pressure and
448 aspiration.

449
450 "Backflow Preventer": A device or an assembly used to prevent contamination of
451 the potable water supply through an actual or potential cross-connection.

452
453 "Backflow Preventer, Double Check Valve Backflow Preventer Assembly" or
454 "DCV": A plumbing appurtenance consisting of two internally force loaded,
455 independently acting check valves that operate normally in the closed position;
456 two tight-closing, resilient seated shut-off valves; and four test cocks.

457
458 "Backflow Preventer, Dual Check Valve Type with Atmospheric Vent": A
459 plumbing appurtenance consisting of two internally force loaded, independently
460 acting check valves, designed to operate normally in the closed position,
461 separated by an intermediate chamber able to automatically vent to atmosphere.

462
463 "Backflow Preventer, Double Check Detector Backflow Prevention Assembly" or
464 "DCDA": A plumbing appurtenance consisting of two internally force loaded,
465 independently acting check valves, designed to operate normally in the closed
466 position; two tight-closing, resilient seated shut-off valves; and four test cocks.
467 The assembly must include a bypass line with a water meter and double check
468 assembly.

469
470 "Backflow Preventer, Dual Check Valve Type": A plumbing appurtenance
471 consisting of two internally force loaded, independently acting check valves,
472 designed to operate normally in the closed position.

473

474 "Backflow Preventer, Dual Check Valves, Post-Mix Carbonated Beverage
475 Dispenser Type": A plumbing appurtenance used to prevent carbonated water or
476 carbon dioxide from backflow into a potable water system. The assembly
477 consists of two internally force loaded, independently acting check valves,
478 designed to operate normally in the closed position, residing in a common body.
479

480 "Backflow Preventer, Reduced Pressure Detector Backflow Prevention
481 Assembly" or "RPDA": A plumbing appurtenance consisting of two internally
482 force loaded, independently acting check valves, designed to operate normally in
483 the closed position, separated by an intermediate zone that includes an internally
484 force loaded hydraulic operated relief for venting to atmosphere, designed to
485 operate normally in the open position, two tight-closing, resilient seated shut-off
486 valves, four test cocks, and a metered reduced pressure backflow prevention
487 assembly bypass.
488

489 "Backflow Preventer, Reduced Pressure Principle Backflow Prevention
490 Assembly" or "RPZ": A plumbing appurtenance consisting of two internally force
491 loaded, independently acting check valves, designed to operate normally in the
492 closed position, separated by an intermediate zone that includes an internally
493 force loaded, hydraulically operated relief for venting to atmosphere, designed to
494 operate normally in the open position, two tight-closing resilient shut-off valves,
495 and four test cocks.
496

497 "Ballcock": A device consisting of a float valve equipped with a flow-splitter to
498 provide a tank and trap refill; used in conjunction with a flush tank on a water
499 closet.
500

501 "Battery of Fixtures": Any group of two or more identical adjacent fixtures that
502 discharge into a common horizontal waste or soil branch. (See Appendix
503 B.Illustration C.)
504

505 "Blackwater": Water containing sewage, bodily fluids or other biological wastes
506 from toilets, dishwashers, kitchen sinks, floor drains and utility sinks.
507

508 "Boiler Blow-Down": A controlled outlet on a boiler to permit emptying or
509 discharging of sediment.
510

511 "Branch": Any part of the piping system other than a main, riser or stack. (See
512 Appendix B.Illustration D.)
513

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

517
518 "Branch Vent": A horizontal vent connecting one or more individual vents with a
519 vent stack or stack vent. (See Appendix B.Illustration E.)

520
521 "Building" or "Facility": Any structure used or intended for supporting or
522 sheltering any use or occupancy. This may include, but is not limited to, mobile
523 food units, prefabricated structures, and free standing plumbing appliances or
524 appurtenances such as ice or water vending machines.

525
526 "Building Classification": The Department's designation of buildings into
527 differing types based upon use or occupancy, such as residential buildings,
528 dormitories, office buildings, food service establishments, etc.

529
530 "Building Drain": The part of the lowest horizontal piping of a drainage system
531 that receives the discharge from soil, waste, and other drainage pipes inside the
532 walls of the building and conveys it to the building (house) sewer. The building
533 drain's developed length terminates 5 feet outside the building foundation wall.
534 (See Appendix B.Illustration F.)

535
536 "Building Sewer": The part of the horizontal piping of a drainage system that
537 extends from the end of the building drain, receives the discharge of the building
538 drain and conveys it to a public sanitary sewer or private sewage disposal system.
539 The building sewer commences 5 feet outside the building foundation wall. (See
540 Appendix B.Illustration F.)

541
542 "Building Storm Drain": The lowest horizontal portion of the storm drainage
543 system used for conveying rain water, surface water, ground water, subsurface
544 water, site drainage, condensate or cooling water inside the walls of a building to
545 a point 5 feet beyond the outside of the building foundation wall.

546
547 "Building Sub-drain": The portion of a sanitary drainage system (see definition of
548 "Drainage System") that cannot drain by gravity into the building drain. (See
549 Appendix B.Illustration G.)

550
551 "Building Trap": A device, fitting, or assembly of fittings installed in a building
552 drain to prevent circulation of air between the drainage system of the building and
553 the building sewer.

554
555 "Certified Local Health Department": A local health department that meets the
556 requirements set forth in Section 600.210 and Subparts C and D of the Certified
557 Local Health Department Code (77 Ill. Adm. Code 600) and is so designated by
558 the Department.

559

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

562
563 "Circuit Vent": A branch vent that serves two or more traps and extends from the
564 front of the last fixture connection of a horizontal waste branch to the vent stack.
565 This type of venting applies only to floor drains and floor outlet fixtures. (See
566 Appendix B.Illustration H.)

567
568 "Clear Water" or "Clear Water Waste": Cooling water and condensate waste
569 from refrigeration or air conditioning equipment, cooled condensate from steam
570 heating systems, and seepage water.

571
572 "Closed Water System": A system that has a backflow device or assembly
573 installed in the water supply system to contain backflow within the premises.
574 Other plumbing appurtenances, such as a single check valve or a water pressure
575 regulator installed in the water supply system, may also create a closed water
576 system.

577
578 "Code": State or local statutes, ordinances, or administrative rules, e.g.,
579 requirements for plumbing methods, materials, etc. This Part)will be referenced
580 in this rule as "Part". At the local level, a county, city, township, village or
581 sanitary/water district shall adopt a plumbing ordinance or resolution and
582 plumbing rules, and the ordinance or resolution and rule shall be filed with the
583 clerk's office. A standard for plumbing contained in any local rule or ordinance
584 that has not been officially adopted can be construed only as a recommended
585 standard.

586
587 "Cold Water": Water that is delivered at ambient temperatures or has not passed
588 through a water heater, has not been exposed to an external heat source, and has
589 not been blended with water above ambient temperatures.~~Water below 85 degrees~~
590 ~~Fahrenheit.~~

591
592 "Combination Fixture": A fixture combining two or more compartments or
593 receptors.

594
595 "Combination Waste and Vent System": A system of waste piping with the
596 horizontal wet venting of one or more floor drains by means of a common waste
597 and vent pipe adequately sized to provide free movement of air above the flow
598 line of the drain.

599
600 "Combined Building Sewer": A sewer that receives storm water and sewage.

601
602 "Common Vent": A vent connecting at the junction of two fixture drains and

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

604

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

607

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

612

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

616

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

620

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

624

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

631

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

638

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

644

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

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

648
649 "Cross-Connection Control by Isolation": The installation of a backflow
650 prevention device or assembly at each actual or potential cross-connection within
651 a premises to protect water quality.

652
653 "Cross-Connection Control" or "CCC": The identification and elimination of all
654 unprotected connections between a potable water system and any other substance.

655
656 "Cross-Connection Control Device": A plumbing appurtenance installed in a
657 potable water line to prevent any substance of any kind from being mixed.

658
659 "Cross-Connection Control Device Inspector": An individual who holds an
660 Illinois Plumbing License and who has been certified in accordance with 35 Ill.
661 Adm. Code 653.802 (Specific Conditions and Installation Procedures) of the
662 Illinois Environmental Protection Agency's rules titled Design, Operation and
663 Maintenance Criteria to inspect, test, maintain and repair cross-connection control
664 devices and assemblies. The certification attests to an inspector's understanding
665 of the principles of backflow and back siphonage, and the public health hazard
666 presented by the improper installation of cross-connection control devices.

667
668 "Cross-Connection, Non-Pressure Type": A submerged inlet installation where a
669 potable water pipe is connected or extended below the overflow rim of a
670 receptacle, or an environment that contains a non-potable substance at
671 atmospheric pressure.

672
673 "Cross-Connection, Pressure Type": An installation where a potable water pipe is
674 connected to a closed vessel or piping system that contains a non-potable
675 substance above atmospheric pressure.

676
677 "Dead End": For the purposes of a water distribution system, dead end means any
678 pipe, tube, fixture or plumbing appurtenance~~A pipe~~ that is subject to persistent
679 low or no flow conditions due to lack of use, construction or design, such as
680 capped pipes, stagnant fire service lines, stagnant lawn irrigation service lines or
681 unused fixtures. Also known as "dead legs". For the purposes of a building drain
682 system, dead end means a pipe that is terminated at a developed distance of 2 feet
683 or more by means of a plug or other closed fitting, except piping serving as a
684 cleanout extension to an accessible area. (See Appendix J.Illustration
685 A.B.Illustration K.)

686
687 "Department": The Illinois Department of Public Health.

688

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

691
692 "Diameter": The length of a straight line passing through the center of an object,
693 e.g., a circle. (For the diameter of a pipe, see "Pipe Diameter".)

694
695 "Drain": Any pipe that carries waste water in a building drainage system. (See
696 Appendix B.Illustration L.)

697
698 "Drain Laying": The laying and connecting of piping from 5 feet outside the
699 foundation wall of a building to the public sanitary sewer system in the street or
700 alley.

701
702 "Drainage Fixture Unit" or "DFU": The mathematical factor used by the
703 plumbing industry to estimate the probable load on the drainage system caused by
704 discharge from various plumbing fixtures. One drainage fixture unit is equivalent
705 to 7½ gallons per minute or 1 cubic foot per minute.

706
707 "Drainage Piping" (See "Drainage System".)

708
709 "Drainage System": All piping within public or private premises that conveys
710 sewage, rain or other liquid wastes to a point of disposal, but does not include the
711 mains of a public sewer system or a private or public sewage treatment or disposal
712 plant. The drainage system does not include the venting system. Drainage and
713 venting are separate systems, although both are part of the overall plumbing
714 system.

715
716 "Durham System": A soil or waste system where all piping is of threaded pipe,
717 using recessed drainage fittings.

718
719 "Effective Opening": The minimum cross-sectional area at the point of water
720 supply discharge, measured or expressed in terms of the diameter of a circle or, if
721 the opening is not circular, the diameter of a circle of equivalent cross-sectional
722 area. (This is applicable to sizing an air gap.)

723
724 ~~"Existing Plumbing" or "Existing Work": A plumbing system or any part of a~~
725 ~~plumbing system that has been installed prior to January 1, 2014.~~

726
727 "Extracted Mechanical Joint": A joint that is developed with a special drilling
728 tool used to penetrate a copper pipe wall, after which two steel pins are extended
729 from the drill. While rotating, the drill head is withdrawn from the pipe under
730 power, raising an external collar from the hole in the pipe. The branch pipe is
731 then brazed into the collared outlet.

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"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.

775 "Food ~~Service~~ Establishment": An operation defined in 77 Ill. Adm. Code
776 750.100 (Food Code). Any establishment selling or serving, to the public, food or
777 liquid beverages that can be consumed on the premises.
778

779 "Grade": The fall, pitch or slope of a line of pipe in reference to a horizontal
780 plane. In drainage, it is usually expressed as the fraction of an inch fall per foot
781 length of pipe. This may also be expressed as a percentage. (See Appendix B.
782 Illustration O.)
783

784 "Graywater": Untreated waste water that has not come into contact with toilet
785 waste, kitchen sink waste, dishwasher waste or similarly contaminated sources.
786 Graywater includes waste water from bathtubs, showers, lavatories, clothes
787 washers and laundry tubs. Also known as gray water, grey water, and greywater.
788

789 "Graywater Harvesting System": A plumbing system intended to collect, convey,
790 store, treat and distribute graywater for approved uses.
791

792 "Grease Interceptor": A device used to separate and retain grease, oils and other
793 floating matter from sewage waste while permitting the remaining flow to
794 discharge into the drainage system. See "Interceptor".
795

796 "Group of Fixtures": Two or more fixtures adjacent to or near each other.
797

798 "Hangers": Devices for supporting and securing pipe, fixtures and equipment to
799 walls, ceilings, floors or any other structural member.
800

801 "Harvested Water": A non-potable source of water that includes, but is not
802 limited to, graywater, clearwater, rainwater, or reclaimed water.
803

804 "Harvested Water System": A plumbing system intended to collect, convey,
805 store, treat and distribute harvested water for approved uses.
806

807 "High Hazard Substance": Any substance that, when present in the potable water
808 system, can cause illness, injury or death if consumed or used.
809

810 "Historic Buildings": All buildings, parts of buildings, facilities or sites
811 individually listed in or eligible for listing in the National Register of Historic
812 Places; a "contributing" building or site in a National Register Historic District as
813 determined by the Illinois Historic Preservation Agency (IHPA) or as determined
814 by a "Certified Local Government" designated by IHPA; a building or site
815 designated as a historic or architectural landmark by a local Landmarks
816 Commission or local Historic Preservation Commission; or buildings that undergo
817 historic reconstruction.

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"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 ~~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."

- 861 "Invert": The lowest part of the internal cross-section of a pipe or conduit.
862
- 863 "Island Fixture Vent": A vent in which the vent pipe rises as near as possible to
864 or above the highest water level in the fixture vented and then turns down before
865 rising to connect to the vent system 6 inches above the flood level rim or
866 terminating to the atmosphere. (See Section 890.1600, "Special Venting for
867 Island Fixtures".)
- 868
- 869 "Joint": The juncture of two pipes, a pipe and a fitting, or two fittings.
870
- 871 "Kiosk": A freestanding place of employment that has five or fewer employees at
872 any time, located inside or outside a building.
873
- 874 "Kitchen or Bar Sink Faucet": A faucet that discharges into a kitchen or bar sink
875 in domestic or commercial installations. Supply fittings that discharge into other
876 types of sinks, including clinic sinks, floor sinks, service sinks and laundry trays,
877 are not included.
878
- 879 "Labeled": An indication that an agency approved by the Department or that is an
880 ANSI-accredited certification program has certified the plumbing material to be in
881 compliance with applicable standards in accordance with this Part.
882
- 883 "Lavatory Faucet": A faucet that discharges into a lavatory basin in a domestic or
884 commercial installation.
885
- 886 *"Lawn Sprinkler System": Any underground irrigation system of lawn, shrubbery*
887 *and other vegetation from any potable water sources; and from any water*
888 *sources, whether or not potable. Does not include an irrigation system used*
889 *primarily for agricultural purposes. (Section 2 of the Illinois Plumbing License*
890 *Law)*
- 891
- 892 "Lead Free": When used with respect to solder and flux, refers to products
893 containing not more than 0.2 percent lead and, when used with respect to wetted
894 surfaces of pipe, pipe fittings, and fixtures, refers to materials containing no more
895 than a weighted average of 0.25 percent lead. Exemptions include *pipes, pipe*
896 *fittings, plumbing fittings, or fixtures, including backflow preventers, that are*
897 *used exclusively for non-potable services, such as manufacturing, industrial*
898 *processing, irrigation, outdoor watering, or any other uses where the water is not*
899 *anticipated to be used for human consumption; or toilets, bidets, urinals, fill*
900 *valves, flushometer valves, tub fillers, shower valves, service saddles, or water*
901 *distribution main gate valves that are 2 inches in diameter or larger. (Section*
902 *1417(a)(4)(A) and (B) of the Safe Drinking Water Act)*
903

904 "Length of Pipe": The overall distance measured along the center line of a pipe.
905 See "Developed Length".
906

907 "Line Valve": A valve in the water supply distribution system, except those
908 immediately controlling one fixture supply.
909

910 "Liquid Waste": The discharge from any fixture, appliance or appurtenance, in
911 connection with a plumbing system that does not receive fecal matter.
912

913 "Load Factor": The percentage of the total connected fixture unit flow rate that is
914 likely to occur at any point in the drainage system. The load factor varies with the
915 type of occupancy, the total flow above the point being considered, and
916 probability of simultaneous use. Load factor represents the ratio of the probable
917 load to the potential load.
918

919 "Local Ventilating Pipe": A pipe on the fixture side of the trap through which
920 vapors or gases or foul air is removed from a room or fixture to the outside
921 atmosphere. Certain special apparatus, such as sterilizers, are sometimes
922 provided with a local ventilating pipe to remove vapors. A local ventilating pipe
923 is not connected into the vent piping of the drainage system.
924

925 "Loop Vent": A circuit vent that loops back to connect with a stack vent instead
926 of a vent stack. Its use is limited to floor drains and floor outlet fixtures.
927

928 "Low Hazard Substance": Any substance that, when present in the potable water
929 system, may cause the water to be discolored or have an unusual odor or an
930 unpleasant taste, but will not cause illness, injury or death if consumed.
931

932 "Main": The principal artery of a piping system to which branches may be
933 connected.
934

935 "Main Vent": The principal artery of the venting system to which vent branches
936 may be connected. A main vent may be a vent stack or stack vent. (See
937 Appendix B.Illustration Q.)
938

939 "Maximum Demand": In plumbing, the greatest requirement of flow of either
940 water supply or waste discharge from the fixtures of a building, or any specific
941 segment of the building fixtures.
942

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

947
948 "Metering Faucet": A self-closing faucet that dispenses a specific volume of
949 water for each actuation cycle. The volume or cycle duration can be fixed or
950 adjustable.
951
952 "Minor Repairs": Repairs that do not require changes in the piping to or from
953 plumbing fixtures or involve the removal, replacement, installation or
954 reinstallation of any pipe or plumbing fixture.
955
956 "Mixed Water": Water at a temperature of not less than 121 degrees Fahrenheit
957 and not more than 159 degrees Fahrenheit.
958
959 "Multi-~~Person~~ Showers": Shower compartments designed and intended for
960 use by two or more persons simultaneously.
961
962 "New Plumbing" or "New Work": Any plumbing system or part of a plumbing
963 system, or any addition to or alteration of an existing system, being installed or
964 recently completed.
965
966 "Non-Potable Water": Water that does not meet drinking water quality standards
967 specified in the Pollution Control Board's rules titled Primary Drinking Water
968 Standards, and is not suitable for human consumption or culinary use, or is of
969 unknown quality.
970
971 "Non-Toxic Transfer Fluids": Fluids having no normal detrimental effect on
972 humans.
973
974 "Occupancy": The purpose for which a building is currently used. In the case of
975 a single family residence, occupancy shall mean taking possession of and living in
976 the premises as one's sole and exclusive residence for a period of not less than six
977 months after the completion of construction or issuance of a Certificate of
978 Occupancy by a unit of local government.
979
980 "Offset": A combination of elbows or bends that brings one section of pipe into a
981 line parallel with another section.
982
983 "Open Plumbing": Installation of plumbing so that traps and drainage pipes and
984 their surroundings beneath fixtures are ventilated, accessible and open to
985 inspection. Open plumbing is also referred to as an exposed plumbing
986 installation.
987
988 "Opportunistic Pathogens": Organisms capable of causing disease when a host's
989 resistance is lowered due to factors including, but not limited to, age, health,

990 medication, occupation, medical treatment, medical diagnosis or
991 immunodeficiency. Opportunistic pathogens include, but are not limited to,
992 Legionella pneumophila, Pseudomonas aeruginosa, Nontuberculous mycobacteria
993 and Staphylococcus aureus.

994
995 "Overflow Rim": The top edge of a receptacle or fixture over which a liquid will
996 flow when the receptacle or fixture is filled beyond its capacity (or flooded).

997 "Flood level rim" is used interchangeably with overflow rim.

998
999 "Part": This Illinois Plumbing Code in its entirety or any emergency rule that the
1000 Department adopts, during the effective period of the emergency rule.

1001
1002 "Peppermint Oil": A pungent, aromatic mint oil sometimes used in testing a
1003 drain, waste and vent system by means of a "Peppermint Test".

1004
1005 "Peppermint Test": A test for leakage using peppermint oil and hot water as the
1006 media, and the sense of smell to determine any leak; also known as a "scent test"
1007 (see Section 890.1930(e)).

1008
1009 "Pet Cock": A small faucet or valve used to drain water, steam or air.

1010
1011 "pH": An expression of acidity and alkalinity on a scale from zero to 14, with 7.0
1012 being neutral. Numbers less than 7.0 indicate increasing acidity as the number
1013 decreases, and numbers greater than 7.0 indicate increasing alkalinity as the
1014 number increases.

1015
1016 "Pipe": A cylindrical conduit or conductor, the wall thickness of which is
1017 sufficient to receive a standard pipe thread.

1018
1019 "Pipe Diameter": The distance measured from the inside wall of a pipe (passing
1020 through the center of the pipe) to the opposite inside wall. Any referenced pipe
1021 diameter or pipe size shall mean the nominal size or diameter.

1022
1023 "Pipefitting": The installation of piping other than piping that is defined as
1024 plumbing.

1025
1026 "Pipe Increments": Increasing or decreasing pipe size by a given number – the
1027 following examples constitute one pipe size change: 1, 1¼, 1½, 2, 2½, 3, 3½, 4,
1028 4½, 5.

1029
1030 "Piping": An assembly of pipes or conduit with fittings of compatible design.
1031 This term is commonly interchanged with "Pipe".

1032

- 1033 "Pitch": Synonymous with "grade". (See "Grade".)
1034
1035 "Plumbing": See the Illinois Plumbing License Law.
1036
1037 "Plumbing Appliance": A special class of plumbing fixture intended to perform a
1038 special function. This term includes water heaters, water coolers, drinking
1039 fountains, and heat exchanger and water treatment equipment other than water
1040 softeners.
1041
1042 "Plumbing Appurtenance": An accessory or device used in a plumbing system
1043 which demands no additional water supply, nor adds any discharge load to a
1044 fixture or the drainage system. Plumbing appurtenances include instruments,
1045 gauges, relief valves, limit switches, backflow assemblies, solenoid valves and
1046 devices between solenoid valves.
1047
1048 "Plumbing ~~Fixtures~~Fixture": Installed receptacles, devices or appliances that are
1049 supplied with water or that receive or discharge liquids or liquid-borne wastes,
1050 with or without discharge into the drainage system with which they may be
1051 directly or indirectly connected.~~Approved, installed receptacles, devices or~~
1052 ~~appliances that are supplied with water or that receive or discharge liquid or~~
1053 ~~liquid-borne waste, with or without discharge of the waste into the drainage~~
1054 ~~system to which they may be directly or indirectly connected; an installed~~
1055 ~~appurtenance to the potable water supply system that makes available intended~~
1056 ~~potable water, or a receptor that receives and discharges liquids or liquid-borne~~
1057 ~~waste either directly or indirectly into the drainage system; or a permanent~~
1058 ~~appendage usually designed as a receptacle and intended to receive or discharge~~
1059 ~~liquid or liquid-borne waste to a drainage system.~~ Industrial or commercial tanks,
1060 vats, and similar processing equipment are not plumbing fixtures, but they may be
1061 connected to, or discharged into, approved traps or plumbing fixtures. (Section 2
1062 of the Illinois Plumbing License Law)
1063
1064 "Plumbing Inspector": An employee or agent of State or local government who
1065 holds a valid Illinois Plumbing License and is authorized to inspect plumbing.
1066
1067 "Plumbing System": See the Illinois Plumbing License Law.
1068
1069 "Pop-Up Waste": A waste outlet into which a sliding metal or plastic stopper is
1070 fitted, and the stopper can be raised to drain the waste. A common pop-up waste
1071 used for lavatories has a lever that passes out the side of the drain fitting and
1072 connects to a lift rod that extends on top of the lavatory or sink. The rod is lifted
1073 to lower the stopper, or depressed to raise the stopper and drain the lavatory.
1074
1075 "Potable Water": Water that meets drinking water quality standards specified in

1076 the Pollution Control Board's rules titled Primary Drinking Water Standards and
1077 is suitable for human consumption or culinary use.

1078
1079 "Pre-Rinse Spray Valve": A hand-held device for use with commercial
1080 dishwashing and ware-washing equipment that sprays water on dishes, flatware
1081 and other food service items for the purpose of removing food residue before
1082 cleaning and sanitizing the items.

1083
1084 "Pressure Gradient Monitor": A device used to protect the quality of water,
1085 failsafe by design, securing the potable water system by isolating a heat
1086 exchanger when the pressure between the potable water and the heat exchange
1087 medium drops below a preset level.

1088
1089 "Pressure Relief Valve" (See "Relief Valves".)

1090
1091 "Private" or "Private Use": In the classification of plumbing fixtures, private
1092 applies to fixtures in residences, apartments and private bathrooms of hotels or
1093 motels where the fixtures are intended for the use of a single family or an
1094 individual; handwashing stations (lavatories) within residents' rooms, within
1095 shared or common resident restrooms, or designated for staff use only in
1096 hospitals/long-term care units/mental health facilities, and hand-washing stations
1097 where food is being prepared.

1098
1099 "Private Sewage Disposal System": Any sewage handling or treatment facility
1100 receiving domestic sewage from fewer than 15 people or population equivalent
1101 and having a ground surface discharge or any sewage handling or treatment
1102 facility receiving domestic sewage and having no ground surface discharge.
1103 Refer to the Private Sewage Disposal Licensing Act and Private Sewage Disposal
1104 Code.

1105
1106 "Private Sewer": A sewer privately owned and not directly controlled by a public
1107 authority.

1108
1109 "Private Water Supply": Any potable water supply that provides water for
1110 drinking, culinary and sanitary purposes and serves an owner-occupied single
1111 family dwelling.

1112
1113 "Proper" or "Properly": To be accurate or meeting the standard of competence for
1114 the given situation and properties of the materials involved based upon the
1115 standards in this Part and manufacturer's recommendations.

1116
1117 "p.s.i"; "P.S.I."; or "psi": Pounds per square inch gauge of pressure.

1118

1119 "Public" or "Public Use": Any installation or use of plumbing fixtures or facilities
1120 except those in residences, apartments or private bathrooms of hotels/motels
1121 where the fixtures are intended for the personal use of an individual or single
1122 family only.

1123
1124 "Public Area": An area within a building accessible to all persons, including, but
1125 not limited to, mercantile units, private clubs and membership organizations.

1126
1127 "Public Sanitary Sewer": A sewer that is controlled by a public authority and is
1128 intended to receive and transport sewage.

1129
1130 "Public Water System": A system for providing piped water to the public for
1131 human consumption, if the system has at least 15 service connections or regularly
1132 serves an average of at least 25 individuals daily at least 60 days per year. The
1133 term public water system includes: any collection, treatment, storage and
1134 distribution facility under the control of the operator of the system and used
1135 primarily in connection with the system; and any collection or pretreatment
1136 storage facilities not under control of the operator of the system that are used
1137 primarily in connection with that system. The public water system ends at and
1138 with the water service connection.

1139
1140 "Quarter Bend": A fitting changing direction of 90 degrees .

1141
1142 "Quick Closing Valve": A valve or faucet that closes automatically when
1143 released or one that has fast action closing.

1144
1145 "Rainwater": Water from natural precipitation collected from roof surfaces or
1146 other manmade, above-ground collection surfaces.

1147
1148 "Rainwater Harvesting System": A plumbing system intended to collect, convey,
1149 store, treat and distribute rainwater for use.

1150
1151 "Readily Accessible": Direct access without the necessity of removing or moving
1152 any panel, door or similar obstruction.

1153
1154 "Receptor": Devices or fixtures that receive the discharge from indirect waste
1155 pipes.

1156
1157 "Reclaimed Water": Water resulting from the treatment of wastewater, as defined
1158 by this Part, that receives a level of treatment consistent with its intended use.

1159
1160 "Reduced Pressure Zone Principle Backflow Preventer Assembly" or "RPZ" (See
1161 "Backflow Preventer, Reduced Pressure Principle Backflow Preventer Assembly")

1162 or "RPZ".)

1163

1164 "Relief Valves":

1165

1166 Temperature relief valve – A valve designed to release water to the
1167 atmosphere at a predetermined temperature setting.

1168

1169 Pressure relief valve – A valve designed to relieve excessive pressure to
1170 the atmosphere at a predetermined setting.

1171

1172 Temperature and pressure relief valve or pressure-temperature relief valve
1173 – A valve incorporating a temperature relief valve and a pressure relief
1174 valve in one unit.

1175

1176 Vacuum relief valve – A valve that admits air to the system when the
1177 system is attempting to reduce its pressure to less than atmospheric.

1178

1179 "Relief Vent": A vent that permits circulation of air in or between drainage and
1180 vent systems. (See Appendix B.Illustration S.)

1181

1182 "Restroom": As a minimum, will consist of one water closet and one lavatory, all
1183 located in the same room.

1184

1185 "Return Offset": A double offset installed so as to return the pipe to its original
1186 alignment.

1187

1188 "Revent Pipe" (See "Individual Dry Vent".) (See Appendix B.Illustration U.)

1189

1190 "Rim": An unobstructed open edge of a fixture.

1191

1192 "Riser": A water supply pipe that extends vertically one full story or more to
1193 convey water to branches or to a group of fixtures.

1194

1195 "Roughing-In": The installation of all parts of the plumbing system that can be
1196 completed prior to the installation of fixtures. This includes drainage, water
1197 supply, and vent piping, and the necessary fixture supports.

1198

1199 "Safe Pan": An appurtenance installed beneath piping or a fixture to collect and
1200 drain any leakage. Safe pans are generally found in food preparation/storage
1201 areas and sterile areas of health care facilities that have overhead, exposed
1202 drainage piping. Safe pans are not intended to receive discharges from
1203 temperature and pressure relief valves.

1204

- 1205 "Safe Waste" (See "Indirect Waste".)
1206
1207 "Sanitary Sewer": A public or private sewer into which building sewers are
1208 connected.
1209
1210 "Sanitary Waste": Sewage containing excrement and liquid wastes or ordinary
1211 wastes derived from a plumbing system.
1212
1213 "Self Closing Faucet": A faucet that closes itself after the actuation or control
1214 mechanism is deactivated. The actuation or control mechanism can be mechanical
1215 or electronic.
1216
1217 "Semi-Private Water System": A water supply that is not a public water system
1218 and that serves a segment of the public other than an owner-occupied single
1219 family dwelling. (See Section 19 of the Illinois Groundwater Protection Act.)
1220
1221 "Separator" (See "Interceptor".)
1222
1223 "Service Connection": The tap at the water main and any pipe to the property
1224 line.
1225
1226 "Service Line": Piping, tubing, and necessary appurtenances installed on any
1227 conduit from the source of a private water supply on the premises or from the
1228 main in the street, alley or at the curb to, any building or exterior plumbing
1229 fixtures.
1230
1231 "Sewage": Any waste containing animal, human or vegetable matter in
1232 suspension or solution, and may include liquids containing chemicals in solution.
1233
1234 "Sewage Ejector": A device for lifting sewage by pumping means.
1235
1236 "Sillcock": A type of lawn faucet. A faucet used on the outside of a building to
1237 which a garden hose may be attached.
1238
1239 "Single Family Dwelling": Any building consisting of one dwelling unit that is
1240 designed for residential use by one family. Does not include group homes or
1241 dwellings operated by human service providers and occupied by unrelated or
1242 unassociated persons.
1243
1244 "Size of Pipe or Tubing": Pipe is generally sized according to the approximate
1245 dimension of its bore or inside diameter, whereas tubing is usually sized by
1246 measuring its outside diameter. Both are expressed in inches and fractions of
1247 inches. For purposes of this Part, any referenced pipe or tubing size shall mean

1248 the nominal size or diameter as designated by the commercial manufacturer.

1249

1250 "Slope": Synonymous with "grade." (See "Grade".)

1251

1252 "Soil Pipe": Any pipe that conveys the discharge of water closets or fixtures
1253 having similar functions, with or without the discharge from other fixtures, to the
1254 building drain.

1255

1256 "Special Waste Pipe": Piping that conveys special waste. Piping that has been
1257 designed and manufactured of special material to handle special waste such as
1258 acids.

1259

1260 "Special Wastes": Wastes that require special handling and treatment before they
1261 may be discharged into the plumbing system. (See Subpart H.)

1262

1263 "~~Sprinkler System~~":

1264

1265 ~~Fire sprinkler system – a system of piping and necessary appurtenances~~
1266 ~~for conveying water or other extinguishing substances to outlets for the~~
1267 ~~purpose of fire extinguishment.~~

1268

1269 ~~Lawn sprinkler system – a system of piping installed for irrigation~~
1270 ~~purposes.~~

1271

1272 "Stack": Any vertical line of soil, waste or vent piping.

1273

1274 "Stack Vent": The extension of a soil or waste stack above the highest horizontal
1275 drain connected to the stack. (See Appendix B.Illustration V.)

1276

1277 "Stack Venting": A method of venting a fixture or fixtures through the soil or
1278 waste stack.

1279

1280 "Sterilizer":

1281

1282 Boiling Type Sterilizer – a fixture (non-pressure type) used for boiling
1283 instruments, utensils or other equipment (used for sterilization). Some
1284 devices are portable; others are connected to the plumbing system.

1285

1286 Instruments Sterilizer – a device for the sterilization of various
1287 instruments.

1288

1289 Pressure (Autoclave) Sterilizer – a fixture (pressure vessel) designed to
1290 use steam under pressure for sterilizing.

1291
1292 Pressure Instrument Washer-Sterilizer – a fixture (pressure vessel)
1293 designed to both wash and sterilize instruments during the operating cycle
1294 of the fixture.
1295
1296 Sterilizer Vent – a separate pipe or stack that is trapped below the lowest
1297 exhaust and indirectly connected to the building drainage systems and that
1298 receives the vapors from non-pressure sterilizers, or the exhaust vapors
1299 from pressure sterilizers, and conducts the vapors directly to the outside
1300 atmosphere. Sometimes called a vapor, steam, atmospheric or exhaust
1301 vent.
1302
1303 Water Sterilizer – a device for sterilizing water and storing sterile water.
1304
1305 "Storm Sewer": A sewer that is used for conveying ~~rainwater, rain water~~, surface
1306 water, ground water, subsurface water, site drainage, condensate, ~~clearwater~~,
1307 cooling water or other similar liquid waste (excluding sewage) from the building
1308 storm drain to an approved point of discharge.
1309
1310 "Stormwater": Rainwater collected at grade or below-grade surfaces.
1311
1312 "Sub-soil Drain": A drain that collects sub-soil drainage and conveys it to a place
1313 of disposal.
1314
1315 "Sub-soil Drainage": Liquid waste, such as run-off water, seepage water or clear
1316 water waste, free of fecal matter and graywater.
1317
1318 "Sump": A receptacle that receives sanitary or storm waste, located below the
1319 normal grade level of the gravity system and emptied by pumping or gravity.
1320
1321 "Sump Pump": A pump for the removal of storm, subsoil and clear water waste
1322 drainage from a sump.
1323
1324 "Supports": A hanger, anchor or other device for securing or holding pipe
1325 fixtures to walls, ceilings, floors or structural members.
1326
1327 "Swimming Pool": See the Swimming Facility Act for minimum sanitary
1328 requirements for the design and operation of swimming facilities.
1329
1330 "Tempered Water": Water ranging in temperature from 85 degrees Fahrenheit to;
1331 ~~but not including~~, 120 degrees Fahrenheit.
1332
1333 "Terminal Heating Device": A device located within the environment to be

1334 conditioned that directly transfers its heating energy by radiation or forced or
1335 gravity convection.
1336
1337 "Test Cock": A small cock, faucet or valve set in a water pipe, pump, backflow
1338 device or water jacket and used to drain water or test pressure.
1339
1340 "Toxic": Not fit for human consumption; poisonous.
1341
1342 "Toxic Transfer Fluids": Sanitary waste, graywater, or mixtures containing
1343 harmful substances, including, but not limited to, ethylene glycol, hydrocarbons,
1344 oils, ammonia refrigerants, and hydrazine.
1345
1346 "Trap": A fitting or device designed and constructed to provide, when properly
1347 vented, a liquid seal that will prevent the back passage of air without materially
1348 affecting the flow of sewage or waste water through it. (See Appendix
1349 B.Illustration W.)
1350
1351 "Trap Arm": The portion of a fixture drain between a trap and its vent.
1352
1353 "Trap Primer": A device or system of piping to maintain a water seal in a trap.
1354
1355 "Trap Seal": The vertical distance between the crown weir and the top of the dip
1356 of the trap. (See Appendix B.Illustration W.)
1357
1358 "Tube": A cylindrical conduit or conductor, the wall thickness of which is less
1359 than that needed to receive a standard pipe thread. Compare with "Pipe".
1360
1361 "Tuberculation": A condition that develops on the interior of pipe due to
1362 corrosion, resulting in the creation of small, hemispherical lumps (tubercles) on
1363 the inner walls of the pipe.
1364
1365 "Union": A coupling device used to join two pipes end-to-end, but allow them to
1366 be disconnected and re-connected. This joint can be assembled and disassembled
1367 without removing any adjacent pipes.
1368
1369 "Unisex Restroom": A restroom shared by males and females and having only
1370 one water closet and one lavatory located in the same room. In addition, a single
1371 urinal may be installed.
1372
1373 "Vacuum": A pressure less than atmospheric pressure, sometimes referred to as
1374 suction. It is usually measured in inches of mercury below atmospheric pressure,
1375 such as 10 or 20 inches of mercury. To vacuum also means to siphon.
1376

1377 "Vacuum Breaker": A device that prevents the creation of a vacuum by admitting
1378 air at atmospheric pressure, used to prevent back siphonage.
1379
1380 "Vacuum Breaker, Hose Type" or "HVB": A back siphonage prevention device
1381 designed for hose connections that are not under continuous pressure, and meeting
1382 the requirements of ASSE 1011.
1383
1384 "Vacuum Relief Valve": A device to prevent excessive vacuum in a pressure
1385 vessel.
1386
1387 "Vent Pipe": A pipe in a plumbing system that is used to equalize pressure and
1388 ventilate the plumbing system. Also see the definition of "Vent System".
1389
1390 "Vent Stack": A vertical vent pipe installed primarily for the purpose of
1391 providing circulation of air to and from any part of the drainage system and
1392 terminating to the atmosphere or in the stack vent.
1393
1394 "Vent System": The pipe or pipes installed to provide a flow of air to or from a
1395 drainage system and to provide a circulation of air within the system to protect
1396 trap seals from siphonage and back pressure.
1397
1398 "Venturi": A short section in a pipe with a reduced diameter or cross-sectional
1399 area (forming a throat) compared to the larger ends, thereby increasing the
1400 velocity of the fluid passing through the throat and decreasing the pressure at the
1401 throat. This decrease in pressure allows another fluid to be drawn into the venturi.
1402
1403 "Vertical Pipe": Any pipe or fitting that makes an angle of 45 degrees or less with
1404 the vertical.
1405
1406 "Wall Hung Water Closet": A water closet installed so that no part of the water
1407 closet touches the floor.
1408
1409 "Waste" (See "Sanitary Waste".)
1410
1411 "Waste Pipe": A pipe that conveys only waste material.
1412
1413 "Wastewater": Sewage, industrial waste, or other waste, or any combination of
1414 these.
1415
1416 "Water Closet": A fixture with a water-containing receptor that receives liquid
1417 and solid body waste and, on actuation, conveys the waste through an exposed
1418 integral trap into a drainage system. Also referred to as a toilet.
1419

1420 "Water Distribution Pipe": A pipe within the building or on the premises that
1421 conveys water from the water service to the point of usage.
1422

1423 "Water Hammer": A concussion or sound of concussion of moving water against
1424 the sides of a containing pipe or vessel due to a sudden stoppage of flow. A
1425 pressure that results from a sudden deceleration of flow of water in a closed
1426 conduit. It is also called hydraulic shock.
1427

1428 "Water Hammer Arrester": A device to absorb hydraulic shock.
1429

1430 "Water Heater": An appliance for supplying hot water for domestic or
1431 commercial purposes. It may be used for space heating if the water temperature
1432 does not exceed 150 degrees Fahrenheit.
1433

1434 "Water Main": A water supply pipe for public or community use.
1435

1436 "Water Outlet": An opening through which water is supplied to a fixture, device,
1437 appliance or appurtenance, or into the atmosphere.
1438

1439 "Water Riser Pipe" (See "Riser".)
1440

1441 "Water Service" or "Water Service Pipe": The pipe from the water main or
1442 source of potable water supply to the water distribution pipe of the building
1443 served.
1444

1445 "Water Softening Equipment": Equipment installed for the sole purpose of
1446 removing calcium, magnesium and other cations from hard water. Water
1447 softening equipment does not include reverse osmosis filtration, multimedia
1448 filtration, or other water treatment technologies installed to control opportunistic
1449 pathogens or chemical hazards.
1450

1451 "Water Supply Fixture Unit" or "WSFU": The mathematical factor used by the
1452 plumbing industry to estimate the probable demand on the water supply system
1453 (considering the volume, duration of flow, and intervals between operations)
1454 caused by various plumbing fixtures.
1455

1456 "Water Supply Stub": A vertical pipe less than one story in height supplying one
1457 or more fixtures.
1458

1459 "Water Supply System": The water service pipe, the water distribution pipe, and
1460 all fittings, valves and appurtenances in or associated with the building or
1461 premises being served.
1462

1463 "Water Treatment Equipment" or "Water Treatment Technologies": Any device
1464 intended to alter biological, physical or chemical characteristics of water to make
1465 the water more acceptable for a proposed use, drinking, industrial process,
1466 cooling, irrigation, or any other purpose.

1467
1468 "Wet Vent": A vent that also serves as a drain. (See Appendix B.Illustration Y.)
1469

1470 "Yard Hydrant": A valve or faucet for drawing water from a buried pipe that
1471 includes a stand pipe with a valve or faucet at the upper end and a threaded valve
1472 outlet to which a hose may be attached.
1473

1474 "Yoke Vent": A pipe connecting upward from a soil or waste stack to a vent
1475 stack for the purpose of preventing pressure changes in the stack. (See Appendix
1476 B.Illustration Z.)
1477

1478 (Source: Amended at 43 Ill. Reg. _____, effective _____)
1479

1480 **Section 890.130 Incorporated and Referenced Materials**
1481

1482 a) The following State and federal statutes and State administrative rules are
1483 referenced in this Part:
1484

- 1485 1) Illinois Plumbing License Law [225 ILCS 320]
- 1486 2) Private Sewage Disposal Licensing Act [225 ILCS 225]
- 1487 3) Illinois Groundwater Protection Act [415 ILCS 55]
- 1488 4) Swimming Facility Act [210 ILCS 125]
- 1489 5) Illinois Safe Bottled Water Act [410 ILCS 655]
- 1490 6) Illinois Bottled Water Act [815 ILCS 310]
- 1491 7) Bed and Breakfast Act [50 ILCS 820]
- 1492 8) Hazardous Substances Act (15 USC 1263)
- 1493 9) Primary Drinking Water Standards (35 Ill. Adm. Code 611)
- 1494 10) ~~Design, Operation and Maintenance Criteria~~ (Specific Conditions and
1495 Installation Procedures) (35 Ill. Adm. Code 653.802)
1502
1503
1504
1505

- 1506 11) Private Sewage Disposal Code (77 Ill. Adm. Code 905)
- 1507
- 1508 12) Illinois Accessibility Code (71 Ill. Adm. Code 400)
- 1509
- 1510 13) Food Service Sanitation Code (77 Ill. Adm. Code 750)
- 1511
- 1512 14) Youth Camp Code (77 Ill. Adm. Code 810)
- 1513
- 1514 15) Recreational Area Code (77 Ill. Adm. Code 800)
- 1515
- 1516 16) Boiler and Pressure Vessel Safety (41 Ill. Adm. Code 120)
- 1517
- 1518 17) Drinking Water Systems Code (77 Ill. Adm. Code 900)
- 1519
- 1520 18) Water Quality Standards (35 Ill. Adm. Code 302)
- 1521
- 1522 19) Energy Policy Act of 1992 (PL 201-486)
- 1523
- 1524 20) Lawn Irrigation Contractor and Lawn Sprinkler System Registration Code
- 1525 (77 Ill. Adm. Code 892)
- 1526
- 1527 21) Safe Drinking Water Act (42 USC 1417)
- 1528
- 1529 22) Certification and Operation of Environmental Laboratories (77 Ill. Adm.
- 1530 Code 465)
- 1531
- 1532 23) [Swimming Facility Code \(77 Ill. Adm. Code 820\)](#)
- 1533
- 1534 24) [Environmental Protection Act \[415 ILCS 5\]](#)
- 1535
- 1536 25) [Permits \(35 Ill. Adm. Code 602\)](#)
- 1537
- 1538 26) [Ambulatory Surgical Treatment Center Act \[210 ILCS 5\]](#)
- 1539
- 1540 27) [Hospital Licensing Act \[210 ILCS 85\]](#)
- 1541
- 1542 28) [Nursing Home Care Act \[210 ILCS 45\]](#)
- 1543
- 1544 29) [Assisted Living and Shared Housing Act \[210 ILCS 9\]](#)
- 1545
- 1546 30) [Community Mental Health Act \[405 ILCS 20\]](#)
- 1547
- 1548 31) [Certified Local Health Department Code \(77 Ill. Adm. Code 600\)](#)

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1591

- 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) 2011 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Handbook – HVAC Applications
 - 2) 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

1592 used in a plumbing system shall have cast, stamped or indelibly marked on
1593 it the maker's mark or name, the weight, type, class of product and the
1594 standard that applies.
1595

1596 d) Testing. The approved agency has tested a representative sample of the material
1597 or piping being labeled to the relevant standard. The approved agency maintains
1598 a record of all tests performed, which provides sufficient detail to verify
1599 compliance with the testing standard.
1600

1601 e) Inspection and identification. The approved agency periodically performs
1602 inspections, which shall include in-plant inspections during the manufacturing
1603 process, to verify that the product being manufactured meets the applicable
1604 standard.
1605

1606 f) Independent. The approved agency discloses all possible conflicts of interest.
1607

1608 g) Equipment. An approved agency has necessary equipment to perform all required
1609 tests. The equipment shall be calibrated according to manufacturer's
1610 recommendations.
1611

1612 h) Personnel. An approved agency employs personnel experienced and educated in
1613 conducting, supervising and evaluating tests.
1614

1615 i) Manufacturer's Identification of Material. The approved agency ensures that each
1616 length of pipe, each pipe fitting, trap, fixture, device and appurtenance used in a
1617 plumbing system has cast, stamped or indelibly marked on it the maker's mark or
1618 name, weight, type, class of product and the standard that applies.
1619

1620 j) Materials that do not meet the applicable standards in Appendix A will be
1621 evaluated by the Department upon receipt of plans, specifications, independent
1622 testing data and other such records required by the Department and may receive
1623 approval for use pursuant to Section 890.1940, with the written consent of the
1624 Department.
1625

1626 k) All plumbing materials shall be lead free.
1627

1628 (Source: Amended at 43 Ill. Reg. _____, effective _____)
1629

1630 **Section 890.230 Safe Pan Material and Construction**

1631
1632 a) Material. Safe pans shall be made only of ~~lead~~, copper, aluminum, galvanized
1633 steel, stainless steel, ABS, PVC or fiberglass material.
1634

- 1635 1) ~~Lead sheets for safe pans shall weigh at least 4 pounds per square foot.~~
1636
1637 12) Copper sheets for safe pans shall weigh at least 12 ounces per square foot.
1638
1639 23) Aluminum, galvanized steel and stainless steel safe pans shall be of at
1640 least 24 gauge material.
1641
1642 34) ABS or PVC safe pans or liners shall be 30 mil or 40 mil.
1643
1644 45) Fiberglass for safe pans or liners shall be equally durable to the ABS and
1645 PVC material described in subsection (a)(3) ~~of this Section.~~
1646
1647 b) Construction. All safe pans shall be constructed with preformed dam corners,
1648 shall be watertight, adequately reinforced and provided with a drain opening
1649 designed to make a watertight joint. ABS and PVC safe pans and liners shall be
1650 solvent welded together with the proper cement.
1651

1652 (Source: Amended at 43 Ill. Reg. _____, effective _____)
1653

1654 SUBPART C: JOINTS AND CONNECTIONS 1655

1656 Section 890.320 Types of Joints 1657

- 1658 a) ~~Caulked joints. Caulked joints for (drain, waste and vent systems only) cast iron
1659 hub and spigot pipe shall be firmly packed with oakum or hemp and filled with
1660 molten lead at least 1 inch deep and be firmly caulked not to extend more than 1/8
1661 inch below the rim of the hub. Paint, varnish, or other coatings shall not be
1662 permitted on the jointing material until after a plumbing inspector has been given
1663 the opportunity to test and approve or disapprove the joint. (See Appendix
1664 C.Illustration A.)~~
1665
1666 ab) Threaded/Screwed Joints. Threaded joints shall conform to American National
1667 Taper Pipe Thread, ASME B.1.20.1 (General Purpose). All burrs shall be
1668 removed; pipe ends shall be reamed or filed to size of the bore, and all chips shall
1669 be removed. Pipe joints compound shall be insoluble in water and non-toxic.
1670
1671 e) ~~Wiped Joints. Joints in lead pipe or fittings, or between lead pipe fittings and
1672 brass or copper pipe ferrules, solder nipples, or traps shall be full wiped joints.
1673 Wiped joints shall have exposed surface on each side of the joint at least 3/4 inch
1674 and at least as thick as the material being joined. Wall or floor flange lead-wiped
1675 joints shall be made by using a lead ring or flange placed behind the joints at the
1676 wall or floor. Joints between lead pipe and cast iron, steel or wrought iron shall
1677 be made by means of a caulking ferrule, soldering nipple or bushing.~~

- 1678
 1679 **b**) Soldered Joints. The surface to be soldered shall be cleaned bright. The joints
 1680 shall be properly fluxed (lead free) and made with approved lead free solder
 1681 conforming to ASTM Standard B32. Joints in copper water tubing shall be made
 1682 with approved cast bronze or wrought copper pressure fittings, properly soldered
 1683 together. All solders or flux containing more than 0.2 percent lead shall bear a
 1684 warning label that states that the solder or flux is not approved for private or
 1685 potable water use as required by Section 4 of the federal Hazardous Substances
 1686 Act (15 USC 1263). Use of this product in making joints or fittings in any private
 1687 or public potable water system is prohibited. No part of a drain, waste and vent
 1688 (DWV) system shall be joined or fitted with a solder or flux containing more than
 1689 0.2 percent lead.
 1690
- 1691 **c**) Flared Joints. Flared joints for plastic pipe and tubing and soft copper water
 1692 tubing shall be made with approved fittings. The tubing shall be expanded with a
 1693 proper flaring tool. (See Appendix C.Illustration B.)
 1694
- 1695 **d**) Hot-Poured Joints. Hot-poured compound for clay or concrete sewer pipe shall
 1696 not be water absorbent and when poured against a dry surface shall have a bond
 1697 of at least 100 pounds per square inch (psi). All surfaces of the joint shall be
 1698 cleaned and dried before pouring. If wet surfaces are unavoidable, a primer such
 1699 as oil or tar shall be applied. The compound shall not soften sufficiently to
 1700 destroy effectiveness of the joint when subjected to a temperature of 160 degrees
 1701 Fahrenheit, and not be soluble in any of the waste carried by the drainage system.
 1702 Approximately 25 percent of the joint space at the base of the socket shall be
 1703 filled with jute or hemp. A pouring collar rope or other device shall be used to
 1704 hold the hot compound during pouring. Each joint shall be poured in one
 1705 operation until the joint is filled. Joints shall not be tested until one hour after
 1706 pouring.
 1707
- 1708 **e**) Precast Joints. Precast collars shall be formed in both the spigot and bell of the
 1709 pipe in advance of use. Prior to making joint contact, surfaces shall be cleaned.
 1710 When the spigot end is inserted in the collar, it shall bind before contacting the
 1711 base of the socket.
 1712
- 1713 **f**) Brazed Joints. Brazed joints shall be made by first cleaning the surface to be
 1714 joined down to the base metal, applying flux approved for brazed joints and for
 1715 the filler metal to be used, and making the joints by heating to a temperature
 1716 sufficient to melt the approved brazing filler metal on contact. (See Section
 1717 890.330(b).) An extracted mechanical joint may be made in copper tube types K
 1718 or L only for water distribution. The joint shall be made with a mechanical
 1719 extraction tool and joined by brazing. To prevent the branch tube from being
 1720 inserted beyond the depth of the extracted joint, depth stops shall be provided.

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This joint shall be for above-ground use only.

g) 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.~~

h) 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).~~

i) 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.

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~~€) 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) 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) 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) 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) 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

1807 ground.

1808

1809 2) Rolled grooved type mechanical couplings, fittings and valves used on
1810 standard weight ~~galvanized steel pipe or~~ type K or L copper tubing shall
1811 comply with the manufacturer's standard, limited to water distribution
1812 piping above ground. Fittings, couplings, and valves shall be compatible
1813 with the pipe material. Transition adapters shall be dielectric type.

1814

1815 3) Gaskets for use with potable water piping shall be fabricated from material
1816 that is non-toxic, durable and impervious.

1817

1818 ~~1818~~ ne) Copper Press Fittings. Copper press fittings for joining copper water tubing shall
1819 have an elastomeric o-ring that forms the joint. The fitting shall be made by
1820 pressing the socket joint under pressure in accordance with the manufacturer's
1821 installation requirements and NSF/ANSI Standard 61.

1822

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

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Section 890.330 Special Joints

1826

1827 a) Copper Tubing to Screwed Pipe Joints. Joints from copper tubing to threaded
1828 pipe shall be made by the use of a cast bronze or wrought copper adaptor fitting.
1829 The joint between copper tubing and the fitting shall be soldered or, if flared or
1830 compression, must be accessible.

1831

1832 b) Welding or Brazing. Brazing or welding shall be in accordance with the
1833 provisions of Section 6 of the Code for Pressure Piping, ASME B31.1.

1834

1835 c) Slip Joints. In drainage and water piping, slip joints may be used on the inlet side
1836 of the trap or in the trap seal, and on the exposed fixture supply. Slip joints shall
1837 not be used in any inaccessible piping. Push-on angle and straight stop valves are
1838 permitted, provided that they meet the following specifications: they are installed
1839 by being pushed onto copper or chlorinated polyvinyl chloride (CPVC); they are
1840 mechanically secured by metal tabs that grip the piping; they are sealed with o-
1841 rings; and they are capable of withstanding a water pressure of 150 psi and a
1842 temperature of 210 degrees Fahrenheit.

1843

1844 d) Expansion Joints. Expansion joints shall be accessible and may be used where
1845 necessary to provide for expansion or contraction of the piping. The expansion
1846 joint material shall conform to the type of piping on which it is installed.

1847

1848 e) Compression type couplings shall not be used in unexposed water piping except
1849 for water services, water meter yokes, and stop box connections.

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- 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;~~
 - AB) No-hub soil pipe shielded couplings with approved adaptor having a raised bead;
 - BE) Compression type joints for hub and spigot cast iron pipe; or
 - CD) 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(~~df~~), (~~eg~~) or (~~le~~), 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(~~df~~), (~~eg~~) or (~~le~~), 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

1893 AWWA C151. Joints in cast iron soil pipe shall be made in accordance with
1894 Section 890.320(a), ~~(b)~~, ~~(k)~~, ~~(l)~~ or ~~(m)~~.

1895
1896 d) Screw Pipe to Cast Iron. Joints between wrought iron, steel, brass, or copper pipe
1897 and cast iron pipe shall be ~~either caulked or~~ threaded joints that are made as
1898 provided in Section 890.320~~(a) or~~ (b) and shall be made with proper adaptor
1899 fittings.

1900
1901 ~~e) Lead to Cast Iron, Wrought Iron or Steel. Joints between lead and cast iron,~~
1902 ~~wrought iron, or steel pipe shall be made by means of wiped joints to a caulking~~
1903 ~~ferrule, soldering nipple, or bushing as provided in Section 890.320(e).~~

1904
1905 ~~ef)~~ Copper Water Tube. Joints in copper tubing shall be made with cast bronze or
1906 wrought copper pressure fittings, properly soldered or brazed, or by means of
1907 compression or flared joints as provided in Sections 890.320~~(bd)~~, ~~(ce)~~, ~~(fh)~~ and
1908 ~~(mp)~~(2). Flared joints and compression fittings shall not be installed underground
1909 except for water services, water meter yokes, and stop box connections.

1910
1911 ~~fg)~~ Plastic Pipe. Joints between plastic pipe and non-plastic material shall be made
1912 only with an appropriate type adaptor as provided in Section 890.320~~(ih)~~ and
1913 890.330(g).

1914
1915 1) Plastic-Commingling. There shall be no commingling of plastic materials
1916 within the same plumbing system except through the use of proper
1917 adaptors or approved solvent as listed in Appendix A. Table A, for
1918 connections transitioning from one material to another, only.

1919
1920 2) Plastic Pipe. Plastic pipe shall not be installed in any tunnel or chase that
1921 contains uninsulated hot water, hot air or steam piping that causes the
1922 ambient air temperature in the tunnel or chase to exceed 180 degrees
1923 Fahrenheit.

1924
1925 ~~gh)~~ Building Sewer Connections. An elastomeric coupling seal conforming to ASTM
1926 C 425, ASTM C 443, ASTM C 564, ASTM D 4161, ASTM F 477, ASTM D
1927 3139, ASTM D 3212, or ASTM D 412 tests may be used to adapt any two
1928 building sewer pipes for different materials or size changes. The flexible
1929 couplings shall be attached to the pipe with stainless steel clamps or bolts. The
1930 manufacturer's recommended method of installation shall be followed.

1931
1932 (Source: Amended at 43 Ill. Reg. _____, effective _____)

1933
1934 **Section 890.360 Water Closet and Pedestal Urinal**

1935

1936 Fixture connections between drainage pipes and water closets, floor outlet service sinks and
1937 pedestal urinals, and earthenware trap standards shall be made by means of brass, copper, ~~hard~~
1938 ~~lead~~, plastic, or iron flanges; ~~caulked~~, soldered, screwed or solvent welded to the drainage pipe.
1939 Flanges of ~~hard lead~~, plastic and iron flanges for no-hub or compression joints shall be secured to
1940 the floor. The connection shall be bolted, with a gasket, washer or setting compound, between
1941 the earthenware and the flange. The floor flange shall be set on an approved firm base. The use
1942 of putty or non-drying plumber's putty manufactured specifically for plumbing installation is
1943 acceptable.

1944
1945 (Source: Amended at 43 Ill. Reg. _____, effective _____)
1946

1947 SUBPART F: PLUMBING FIXTURES
1948

1949 **Section 890.610 General Requirements – Material and Design**
1950

- 1951 a) Quality, Function and Efficacy of Fixtures: Plumbing fixtures shall comply with
1952 approved designs, be constructed from approved materials, have smooth,
1953 impervious surfaces and be free of defects and concealed fouling surfaces. Any
1954 appliance, appurtenance or fixture installed pursuant to this Part shall be certified
1955 for its intended use and purpose by one or more approved agencies listed in
1956 Appendix A. Any appliance that amends or alters potable water in a plumbing
1957 system shall be certified by one or more agencies listed in Appendix A for
1958 efficacy in achieving its listed use and purpose. In the absence of a suitable
1959 standard for certification, approval may be sought pursuant to Section 890.1940
1960 by submitting plans, specifications, independent testing data and other such
1961 records as may be required by the Department in making a determination of
1962 approval for use. (See Appendix A, Table A ("Approved Materials and Standards
1963 for Plumbing Fixtures and Fixture Fittings") and "Approved Standards for
1964 Plumbing Appliances/Appurtenances/Devices".)
1965
- 1966 b) Used plumbing material, equipment and fixtures for plumbing installations shall
1967 comply with this Part.
1968
- 1969 c) Any plumbing equipment condemned by the Department because of wear,
1970 damage, defects or sanitary hazards shall not be used in a plumbing system.
1971
- 1972 d) In buildings other than residential, hot water shall be generated, distributed and
1973 maintained at 160 degrees Fahrenheit or higher. Any mixing or tempering of hot
1974 water for use in plumbing fixtures, appliances or appurtenances shall occur within
1975 12 inches before any fixture, appliance or appurtenance. Mixing and tempering
1976 devices shall comply with the requirements of this Part. Distribution of tempered
1977 or mixed water is prohibited.
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(Source: Amended at 43 Ill. Reg. _____, effective _____)

Section 890.630 Installation

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- 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.

(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~~ ~~(3/4)~~ 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 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 shall be provided with 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, 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~~ mixed water temperature shall be individually regulated by automatic safety mixing valves for each shower unit. 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

2108 principle backflow preventer assembly complying with ASSE 1013 or a fixed air
2109 gap.

2110
2111 1) A portable dialysis unit or machine shall have a reduced pressure principle
2112 backflow preventer assembly installed on the water supply inlet on the
2113 unit.

2114
2115 2) Stationary dialysis equipment within a facility shall require, at the filter
2116 room or the dialysis machines, a reduced pressure principle backflow
2117 preventer assembly on the water supply or a water supply with a fixed air
2118 gap.

2119
2120 3) Dialysis equipment shall be installed in accordance with this Part and the
2121 manufacturer's specifications. Any conflicts shall be submitted to the
2122 Department for resolution.

2123
2124 b) The water supply to a dialysis reuse room or dialysis machine repair room shall be
2125 isolated from all other deionized (DI) or reverse osmosis (RO) water lines by an
2126 RPZ or an air gap.

2127
2128 c) A sign no smaller than 8 by 10 inches with the wording "This Water For Dialysis
2129 Only" shall be placed above a sink with DI water or RO water supplied to the
2130 faucet.

2131
2132 d) The discharge for each dialysis unit or machine, portable or stationary, shall be
2133 provided with an individual indirect waste connection to the sanitary drainage
2134 system. Each stand pipe shall be individually trapped and vented, or a vertical
2135 common vent may serve two dialysis stations. (See Appendix K.Illustration O.)
2136 Vents shall be installed in accordance with Appendix A.Table I.

2137
2138 e) The discharge from kidney dialysis equipment shall be separated from the kidney
2139 dialysis equipment water supply inlet and dialysate additives. Compliance with
2140 this requirement may be achieved by:

2141
2142 1) Two Separate Wall Boxes. One wall box is provided for water supply and
2143 dialysate additives and a separate box is provided for dialysis waste. The
2144 wall box receiving patient waste shall:

2145
2146 A) Provide a fixed air gap of at least one inch;

2147
2148 B) Offer protection, such as a compartment door or access panel, to
2149 protect against splatter, splashing or overflow to prevent
2150 contamination of the other wall box compartments or the rest of

- 2151 the dialysis station (Note: An air gap may not be contained in a
2152 sealed compartment.);
- 2153
- 2154 C) Allow for easy observation and sampling of the discharge; and
2155
- 2156 D) The drain outlet from the wall box shall be a minimum of 1½
2157 inches in diameter.
2158
- 2159 2) Compartmentalized Wall Box. A single wall box may be installed when
2160 separation of waste and water supply and dialysate additives have been
2161 provided. Separation may be achieved by:
2162
- 2163 A) Installation of a wall box designed with isolated compartments that
2164 provide a physical barrier between waste and water supply and
2165 dialysate additives. The compartment designated to receive dialysis
2166 patient waste shall be designed and installed to comply with
2167 subsection (e)(1); or
2168
- 2169 B) Quick Connection Fitting. A quick connection fitting may be
2170 installed in the wall box to receive the patient waste. This fitting
2171 shall be located below all other water supply and dialysate additive
2172 connections. The fitting receiving the waste shall be piped to
2173 discharge to an indirect waste receptor at a location isolated from
2174 the wall box. Isolated means either physically separated from the
2175 wall box by a wall or panel or located a minimum of 18 inches
2176 vertically and horizontally from the nearest edge of the wall box.
2177 The indirect discharge shall be installed to comply with subsection
2178 (e)(1).
2179
- 2180 f) All plumbing materials associated with dialysis equipment, including the
2181 reduced pressure principle (RPZ) backflow preventer assembly device,
2182 shall consist of non-metallic materials approved in Appendix A, Table A.
2183
- 2184 g) All water and dialysis supply lines and waste lines to and from dialysis
2185 machines shall be designated to prevent cross-contamination.
2186
- 2187 h) Traps
2188
- 2189 1) A minimum developed length of 8 inches shall be provided from
2190 the wall box outlet to the weir of the trap.
2191
- 2192 2) The developed length from the wall box outlet to the trap weir
2193 shall not exceed 24 inches.

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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.

(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.~~
- ~~ef) 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.~~
- ~~ef) 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.

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- 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 ~~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

- 2366 1) Sewage Lines. There shall be no direct connection between potable water
2367 lines and sewage lines or equipment and vessels containing sewage.
2368 Connections shall be made only through a minimum fixed air gap as
2369 outlined in subsection (f)(5).
2370
- 2371 2) Chemical or Petroleum Pressure Vessels. No direct connection shall occur
2372 between any potable water supply and any pressure vessel, i.e., storage
2373 tank, tank car, tank truck or trailer, or other miscellaneous pressurized tank
2374 or cylinder containing or having contained liquified gaseous petroleum
2375 products or other liquified gaseous chemicals. When it is necessary to
2376 discharge from a potable water line to a pressure vessel, the discharge
2377 shall be through a minimum fixed air gap as outlined in subsection (f)(5).
2378 Exception: Chemical pressure vessels containing chemicals used in the
2379 water treatment process, for uses other than private purposes, are exempt
2380 from this subsection (e)(2).
2381
- 2382 3) If water under pressure is required, as in subsections (e)(1) and (2), it shall
2383 be supplied by means of an auxiliary pump taking suction from a tank
2384 provided for this purpose only with an over-rim supply having the
2385 required minimum fixed air gap.
2386
- 2387 4) A potable water line to a single wall refrigerant condenser shall be
2388 provided with a backflow preventer complying with ASSE 1012 or 1013.
2389
- 2390 5) No pipe or fitting of the water supply system shall be drilled or tapped nor
2391 shall any band or saddle be used except at the water main in the street.
2392 Exception: See Section 890.320(fh) for potable water use only.
2393
- 2394 f) Devices for the Protection of the Potable Water Supply. Approved backflow
2395 preventers or vacuum breakers shall be installed with all plumbing fixtures and
2396 equipment that may have a submerged potable water supply outlet and that are not
2397 protected by a minimum fixed air gap. Connection to the potable water supply
2398 system for the following fixtures or equipment shall be protected against
2399 backflow with one of the appropriate devices as indicated below:
2400
- 2401 1) Inlet to receptacles containing low hazard substances (steam, compressed
2402 air, food, beverages, etc.):
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- 2404 A) fixed air gap fitting;
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- 2406 B) reduced pressure principle backflow preventer assembly;
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- 2408 C) atmospheric vacuum breaker unit;

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- 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.):

- 2452 i) fixed air gap fitting; or
2453
2454 ii) a reduced pressure principle backflow preventer assembly.
2455
- 2456 5) Inlet to or direct connection with sewage or lethal substances: fixed air gap
2457 fitting.
2458
- 2459 6) Hose and spray units or stations shall be protected by one of the
2460 appropriate devices as indicated below:
2461
- 2462 A) Fixed air gap;
2463
2464 B) Reduced pressure principle backflow preventer assembly;
2465
2466 C) Double check valve backflow preventer assembly;
2467
2468 D) Double check valve backflow preventer with atmospheric vent
2469 assembly;
2470
2471 E) Dual check valve backflow preventer assembly;
2472
2473 F) Atmospheric vacuum breaker unit.
2474
- 2475 g) Installation of Devices or Assemblies
2476
- 2477 1) Devices of All Types. Backflow preventer assemblies and devices shall be
2478 installed to be accessible for observation, maintenance and replacement
2479 services. Backflow preventer devices or assemblies shall not be installed
2480 where they would be subject to freezing conditions, except as allowed in
2481 Section 890.1140(d).
2482
- 2483 2) All in-line backflow/back siphonage preventer assemblies shall have a full
2484 port type valve with a resilient seated shut-off valve on each side of the
2485 preventer. Relocation of the valves is not permitted.
2486
- 2487 3) A protective strainer shall be located upstream of the first check valve on
2488 all backflow/back siphonage preventers unless the device contains a built-
2489 in strainer. Fire safety systems are exempt from the strainer requirement.
2490
- 2491 4) Atmospheric vacuum breakers shall be installed with the critical level
2492 above the flood level rim of the fixture they serve, and on the discharge
2493 side of the last control valve of the fixture. No shut-off valve or faucet
2494 shall be installed beyond the vacuum breaker.

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- 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.

2517 h) Dead ends shall not be installed, constructed or maintained in any plumbing
 2518 system.

2519
 2520 (Source: Amended at 43 Ill. Reg. _____, effective _____)

2521
 2522 **Section 890.1150 Water Service Pipe Installation**

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- 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

- 2538 sewer. The building sewer shall be of material listed in Appendix A.Table
2539 A (Approved Building Drainage/Vent Pipe) for a building drain. (See
2540 Appendix I.Illustration F for the proper installation of water service,
2541 building drain and building sewer.)
2542
2543 3) The minimum depth for any water service pipe shall be at least 36 inches
2544 or the maximum frost penetration of the local area, whichever is of greater
2545 depth.
2546
2547 4) No water service pipe shall be installed or permitted outside of a building
2548 or in an exterior wall unless the pipe is protected from freezing, in
2549 accordance with Section 890.1210(a).
2550
2551 b) Potable Water Piping and Sanitary Sewer Crossing Installation Requirements
2552
2553 1) Potable water piping that passes above or below a sanitary sewer shall be
2554 installed with a minimum vertical separation of 18 inches for a distance of
2555 10 feet on either side from the center of the sanitary sewer.
2556
2557 2) If potable water piping passes beneath a sanitary sewer or drain, the
2558 sanitary sewer or drain shall be constructed of materials as specified in
2559 Appendix A.Table A (Approved Building Drainage/Vent Pipe) for
2560 building drains and shall extend on each side of the crossing to a distance
2561 of at least 10 feet as measured at right angles to the water line. The
2562 potable water piping shall comply with Appendix A.Table A as specified
2563 for a water service pipe (Approved Materials for Water Service Pipe).
2564 (See Appendix I.Illustration G.)
2565
2566 3) When compliance with subsection (b)(1) or (2) is not possible, a pressure
2567 rated pipe, approved for building drain material listed in Appendix
2568 A.Table A, shall encase the water service pipe. The casing pipe shall be
2569 sealed with a casing seal and extend 10 feet on either side of the center of
2570 the sanitary sewer pipe. The sleeve or case shall be at least two times the
2571 size of the water service.
2572
2573 c) When compliance with subsection (a) or (b) is not possible, the Department shall
2574 be contacted for consideration of alternative methods.
2575
2576 d) Stop-and-Waste Valve. Combination stop-and-waste valves and cocks shall not
2577 be installed in an underground potable water pipe. Frost-free hydrants and fire
2578 hydrants shall not be considered stop-and-waste valves. (See Section
2579 890.1140(e).)
2580

- 2581 e) Replacement or Repair of Existing Service Lines. If any portion of a service line
2582 is constructed of materials not approved under Appendix A, and the service line is
2583 to be modified, repaired or replaced, then the portion constructed of unapproved
2584 materials and all downstream portions of the service line must be replaced with
2585 approved materials listed in Appendix A. Repair of existing service lines shall be
2586 made in accordance with Section 890.350(b) and only using materials approved in
2587 Appendix A.
- 2588
- 2589 f) Any service line intended to supply seasonal or infrequent uses, such as lawn
2590 irrigation systems, fire protection systems, which may include fire hydrant leads,
2591 fire hydrant loops, fire sprinkler systems or hose reels, shall be installed in a
2592 manner to prevent stagnation of water. This shall be achieved by installing service
2593 lines in accordance with one of the following methods:
- 2594
- 2595 1) Install a combined building water service capable of meeting the larger of
2596 the domestic or fire suppression system flow requirements;
- 2597
- 2598 2) Install a service line designed to ensure the water age within the service
2599 line does not exceed 48 hours under normal building operations with the
2600 design certified by an Illinois licensed professional engineer, an Illinois
2601 licensed architect or an individual Certified in Plumbing Design (CPD) by
2602 the American Society of Plumbing Engineers and approved in writing by
2603 the Department; or
- 2604
- 2605 3) Cross-Connection Control by Containment: Install an approved backflow
2606 device, within a distance no greater than two times the nominal inside pipe
2607 diameter of the service line, from the water main or pipe supplying the
2608 water service.
- 2609

2610 (Source: Amended at 43 Ill. Reg. _____, effective _____)

2611

2612 **Section 890.1200 Water Service Sizing**

2613

- 2614 a) Water Service Pipe Sizing. The water service pipe from the street main
2615 (including the tap) to the water distribution system for the building shall be sized
2616 in accordance with Appendix A, Tables M, N, O, P and Q. Water service pipe
2617 and fittings shall be at least ¾ inch diameter. Plastic water pipe shall be rated at a
2618 minimum of 160 psi at 73.4°F. If flushometers or other devices requiring a high
2619 rate of water flow are used, the water service pipe shall be designed and installed
2620 to provide this additional flow.
- 2621
- 2622 b) Demand Load. The calculation of the water service demand load for a building
2623 shall be based on the total number and types of fixtures installed in the building,

2624 assuming the simultaneous use of such fixtures.
2625

- 2626 e) ~~Unused sections of water service or water distribution piping ("dead ends"),~~
2627 ~~where the water in the piping may become stagnant, are prohibited. A developed~~
2628 ~~length of more than 2 feet shall be considered a dead end.~~
2629

2630 (Source: Amended at 43 Ill. Reg. _____, effective _____)
2631

2632 **Section 890.1210 Design of a Building Water Distribution System**
2633

- 2634 a) Design and Installation. The design and installation of the hot and cold water
2635 building distribution systems shall provide a volume of water at the required rates
2636 and pressures to ensure the safe, efficient and satisfactory operation of fixtures,
2637 fittings, appliances and other connected devices during periods of peak use. No
2638 distribution pipe or pipes shall be installed or permitted outside of a building or in
2639 an exterior wall or attic unless the pipe is protected from freezing.
2640
- 2641 b) Size of Water Distribution Pipes. The fixture supply for each fixture shall be at
2642 least the minimum size provided in Appendix A.Table D. The size of all other
2643 water distribution pipes shall be determined by calculating the water supply
2644 demand (in water supply fixture units) for that portion of the water distribution
2645 system served by the pipe. Using Appendix A.Tables M, N, O, P and Q, the
2646 cumulative water supply demand or load shall be calculated for all fixtures,
2647 piping, valves and fittings served by the water distribution pipe, and the pipe shall
2648 meet the minimum size provided in Appendix A.Table N or O, as applicable.
2649 Exception: As an alternative to using Tables M, N, O, P and Q to design and size
2650 the piping in the water distribution system, the system may be designed and sized
2651 employing current engineering practices, provided that the design/plans are
2652 approved in writing by an Illinois licensed professional engineer, an Illinois
2653 licensed architect or an individual Certified in Plumbing Design (CPD) by the
2654 American Society of Plumbing Engineers and approved in writing by the
2655 Department.
2656
- 2657 c) Minimum Water Pressure. The minimum constant water service pressure on the
2658 discharge side of the water meter shall be (at least) 20 psi, and the minimum
2659 constant water pressure at each fixture shall be at least 8 psi or the minimum
2660 recommended by the fixture manufacturer.
2661
- 2662 d) Auxiliary Pressure. Supplementary Tank. If the pressure in the system is below
2663 the minimum 8 psi at the highest water outlet when the flow in the system is at
2664 peak demand, an automatically controlled pressure tank or gravity tank of a
2665 capacity to supply sections of the building installation that are too high to be
2666 supplied directly from the public water main shall be installed.

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- 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. 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 necessary to eliminate water hammer.~~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

2710 valve shall be installed in a water supply pipe serving the fixture to reduce
2711 the water pressure at the fixture to 80 psi or lower.

2712
2713 h) Approval of Auxiliary Pressure Systems. Whenever, in any building, structure or
2714 premises receiving its potable water supply from the public water system, a pump
2715 or any other device for increasing the water pressure is to be installed, installation
2716 plans shall be approved by the Department prior to installation in accordance with
2717 Section 890.1940.

2718
2719 i) Variable Street Pressures. If the water main has a wide fluctuation in pressure,
2720 the water distribution system shall be designed for minimum pressure available at
2721 the main.

2722
2723 (Source: Amended at 43 Ill. Reg. _____, effective _____)

2724
2725 **SUBPART N: BUILDING WATER QUALITY**

2726
2727 **Section 890.2000 Approval of Water Treatment Technologies**

2728
2729 Water treatment technologies are plumbing appliances and shall comply with Section 890.610(a)
2730 or be submitted to the Department for approval prior to installation in accordance with Section
2731 890.1940.

2732
2733 (Source: Added at 43 Ill. Reg. _____, effective _____)

2734
2735 **Section 890.2010 Compliance with Community Water Supply Requirements**

2736
2737 Facility plumbing systems utilizing water treatment technologies or supplemental disinfectants,
2738 including but not limited to, chlorine, monochloramine, chlorine dioxide, and copper-silver ions
2739 for the control of opportunistic pathogens shall comply with the Drinking Water Systems Code,
2740 the Environmental Protection Code and Environmental Protection Act, as applicable.

2741
2742 (Source: Added at 43 Ill. Reg. _____, effective _____)

2743
2744 **Section 890.2020 Decorative Fountains and Aesthetic Water Fixtures**

2745
2746 a) Decorative fountains or aesthetic water fixtures, including, but not limited to,
2747 water walls or spray fountains shall be designed, installed and maintained in
2748 accordance with this Part.

2749
2750 b) Decorative fountains and aesthetic water fixtures shall not be supplied from a
2751 harvested water system.

2752

- 2753 c) Decorative fountains and aesthetic water fixtures that utilize recirculation and
 2754 provide for direct contact by the public shall comply with the Swimming Facility
 2755 Code.
- 2756
- 2757 d) Owners and operators of decorative fountains and aesthetic water fixtures shall
 2758 develop and maintain a disinfection and maintenance program. This does not
 2759 apply to single family dwellings.
- 2760
- 2761 e) Owners and operators shall maintain records for the disinfection and maintenance
 2762 program for at least 3 years. These records shall include, but are not limited to,
 2763 the disinfection and maintenance schedule, maintenance and disinfection records,
 2764 and any associated sampling and analyses if a sampling plan is in place. The
 2765 records shall be made available to the Department upon request. This does not
 2766 apply to single family dwellings.
- 2767
- 2768 f) Decorative fountains and aesthetic water fixtures shall not be installed in food
 2769 establishments.
- 2770
- 2771 g) Decorative fountains and aesthetic water fixtures shall not be installed in health
 2772 care facilities subject to the Ambulatory Surgical Treatment Center Act, Hospital
 2773 Licensing Act, Nursing Home Care Act, Assisted Living and Shared Housing Act
 2774 or Community Mental Health Act.
- 2775
- 2776 h) Decorative fountains and aesthetic water fixtures shall not be installed as part of a
 2777 building's humidification system.

2778
2779 (Source: Added at 43 Ill. Reg. _____, effective _____)
2780

2781 **Section 890.2030 Response to Water Outages and Boil Orders**
2782

- 2783 a) Health Care Facilities Subject to the Ambulatory Surgical Treatment Center Act,
 2784 Hospital Licensing Act, Nursing Home Care Act, Assisted Living and Shared
 2785 Housing Act, or Community Mental Health Act
- 2786
- 2787 1) Upon becoming aware of a water outage or drop in system pressure below
 2788 20 psi, the facility owner or operator shall:
- 2789
- 2790 A) Take measures to isolate the facility water distribution system from
 2791 the water service;
- 2792
- 2793 B) Cease to open or operate plumbing fixtures during the outage; and
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C) Maintain the building water distribution 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 on the potable water quality, including disinfectant levels 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 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 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 surveillance for at least 7 days before returning to 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;

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- 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.

2924 c) Graywater collected solely for subsurface irrigation, drip irrigation, or non-
2925 aerosolized surface applications shall comply with Section 890.3050.

2926
2927 d) Owners of graywater harvesting systems shall maintain records of maintenance
2928 and operation and such records shall be made available to the Department or
2929 authorized unit of local government upon request. These records shall be
2930 maintained with the system for a period of not less than five years.

2931
2932 (Source: Added at 43 Ill. Reg. _____, effective _____)

2933
2934 **Section 890.3020 Reclaimed Water Applications**

2935
2936 a) Producers and users of reclaimed water may develop standards based on fitness
2937 for intended use. Those requirements are not subject to the requirements of this
2938 Subpart except when the public may be exposed to reclaimed water via potential
2939 ingestion, inhalation or skin contact.

2940
2941 b) All harvested systems using reclaimed water that may result in public exposure to
2942 harvested water shall be submitted to the Department for approval prior to
2943 installation of those systems in accordance with Section 890.1940.

2944
2945 c) Responsible parties for reclaimed water shall take all necessary precautions to
2946 prevent public exposure to reclaimed water to protect the public health.

2947
2948 d) Producers of reclaimed water, such as units of local government, may establish
2949 agreements to provide or sell reclaimed water. The Department shall be notified
2950 of reclaimed water purchase agreements when water quantities provided are
2951 greater than 50,000 gallons per day, 250,000 gallons per month, or 5,000,000
2952 gallons per year.

2953
2954 e) Producers and users of reclaimed water shall maintain records of water purchase
2955 agreements and quantities sold or transferred for at least 5 years. Those records
2956 shall be made available to the Department or authorized unit of local government
2957 upon request.

2958
2959 (Source: Added at 43 Ill. Reg. _____, effective _____)

2960
2961 **Section 890.3030 On-Site Collected Blackwater**

2962
2963 Any plumbing system designed to collect, convey, store, treat and distribute blackwater shall be
2964 submitted to the Department for approval prior to installation of that system, in accordance with
2965 Section 890.1940.

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2967 (Source: Added at 43 Ill. Reg. _____, effective _____)
2968

2969 **Section 890.3040 Harvested Water System Isolation**
2970

2971 All systems utilizing harvested water shall be isolated from potable water systems in accordance
2972 with Section 890.1130.

2973
2974 (Source: Added at 43 Ill. Reg. _____, effective _____)
2975

2976 **Section 890.3050 Harvested Water Systems for Subsurface Irrigation**
2977

2978 Harvested water collected solely for the purpose of subsurface irrigation, drip irrigation, or non-
2979 aerosolized surface applications are not subject to the requirements of Sections 890.3010 and
2980 890.3020. Responsible parties for subsurface irrigation applications using harvested water shall
2981 take all necessary precautions to prevent public exposure and to protect public health. Irrigation
2982 systems shall be installed in accordance with the Lawn Irrigation Contractor and Lawn Sprinkler
2983 System Registration Code.

2984
2985 (Source: Added at 43 Ill. Reg. _____, effective _____)
2986

2987 **Section 890.3060 Combined Source Harvested Water Systems**
2988

2989 All harvested water systems designed to collect and store more than one type of harvested water
2990 shall limit end use of the harvested water to the most restrictive application described in the
2991 applicable standards.

2992
2993 (Source: Added at 43 Ill. Reg. _____, effective _____)
2994

2995 **Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and**
 2996 **Applicable Standards**

2997
 2998 **Section 890.TABLE A Approved Materials and Standards**

2999
 3000 All materials shall meet at least one of the approved standards listed.

3001
 3002 **Approved Building Drainage/Vent Pipe**

- 3003
- | | | |
|-----|--|--|
| 1) | Acrylonitrile 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 Pipe² | ASTM A 53/A53M 2012 |
| 78) | Glass Fiber Borosilicate Pipe ³ | ASTM C 1053-2010 |

	89)	High Silicon Content Cast Iron Pipe ³	ASTM A 377-2008e1 CSA B70-2012
	940)	Polypropylene Pipe ³	CSA B137.1-2009 in B137
	1044)	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
	1142)	Polyvinyl Chloride (PVC) Pipe with Cellular Core ⁴ Joints Primer Solvent Cement ¹	ASTM F891-2010 ASTM F1760-2011 ASTM D 2855-2010 ASTM F 656-2010 ASTM D 2564-2012 ASTM D 3138-2011
	1243)	Polyvinylidene Fluoride ³	ASTM D 3222-2010
	1344)	Solder	ASTM B 32-2008
	1445)	Stainless Steel – types 304 and 316L	ASME A112.3.1-2007 (R2012)
	1546)	Stainless Steel Buttweld Fittings	ASTM A 403/A 403M-2012 ASTM A 774/A 774M-2009
	1647)	Stainless Steel Flanges	ASTM A 2400/A 240M-2012a
	1748)	Identification of Piping Systems	ASME A13.1-2007

3004

3005 Agency Notes:

3006

3007 ¹ Solvent cement must be handled in accordance with ASTM F 402-1993.

3008 ² Type M copper tubing and; DWV copper tubing, ~~and galvanized steel pipe~~ are approved for
3009 above-ground uses only.

3010 ³ Approved for corrosive waste or corrosive soil conditions.

3011 ⁴ PVC pipe with cellular core is approved only for gravity drainage and venting.

3012 ⁵ ASME B.1.20.1-1983

3013

3014 **Approved Materials for Building Sewer**

3015

1)	Acrylonitrile Butadiene Styrene (ABS) Pipe	ASTM D 2661-2011
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	Joints	ASTM D 2751-2005 ASTM F 628-2012 CSA B181.1-2011 in B1800 ASTM D 2235-2011
	Solvent Cement ¹	CSA B602-2010 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
	Rubber Gaskets	FM 1680-1989 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 Solvent Cement ¹	ASTM F 656-2010 ASTM D 2564-2012 ASTM D 3138-2011 CSA B181.2-2011 in B1800
8)	Polyvinyl Chloride (PVC) Pipe with Cellular Core ² Joints Primer Solvent Cement ¹	ASTM F 891-2010 ASTM D 2855-2010 ASTM D 412-2006ae2 ASTM F 656-2010 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

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3017 Agency Notes:

3018

3019 ¹ Solvent cement must be handled in accordance with ASTM F 402-1988.

3020 ² PVC pipe with cellular core and vitrified clay pipe are approved only for gravity drainage.

3021 ³ Dimension Ratio (DR) 17 or less.

3022 ⁴ Dimension Ratio (DR) 13.5 or less.

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3024

Approved Materials for Water Service Pipe

3025

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

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| 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

Joints

Solvent Cement ¹ | ASTM D 2846/D 2846M-2009be1
ASTM F 441/F 441M-2012
ASTM F 442/F 442M-2012
CSA B137.6-2009 in B137
ASTM D 2846/D 2846M-2009be1
CSA B137.6-2009 in B137
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 Pipe² | ASTM A 53/A 53M-2012 |
| 8) | Poly Butylene (PB) Pipe/Tubing² | CSA B137.8-2009 in B137 |
| 79) | Polyethylene (PE) Pipe ² | ASTM D 2239-2012a
AWWA C901-2008
AWWA C906-2012
(Material Code PE3408) ⁴
(Material Codes PE2406 and PE3406) ⁵ |
| 810) | Polyethylene (PE) Tubing ² | ASTM D 2737-2012a
CSA B137.1-2009 in B137 |
| 911) | Polypropylene Pipe ² | ASTM F 2389-2010 |
| 1012) | 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 Cement¹

ASTM F 656-2010
 ASTM D 2564-2012
 CSA B137.3-2009 in B137

| ~~1143~~) Stainless Steel Pipe²

ASTM A 312/A 312M-2012a
 ASTM A 403/A 403M-2012
 ASTM A 511/A 511M-2012

| ~~1244~~) Welded Copper Water Tube²

ASME B31.1-2012
 ASTM B 447-2012a WK and
 WL

| ~~1345~~) Solder

ASTM B 32-2008

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3027 Agency Notes:

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3029 ¹ Solvent cement must be handled in accordance with ASTM F 402-1988.

3030 ² Water service pipe must meet the appropriate NSF standard for potable water.

3031 ³ Type K or L copper may be installed underground.

3032 ⁴ Dimension Ratio (DR) 17 or less.

3033 ⁵ Dimension Ratio (DR) 13.5 or less.

3034 ⁶ ASME B.1.20.1-1983.

3035

3036

Approved Materials for Water Distribution Pipe

3037

1) Brass Pipe²

ASTM B 43-2009

2) Chlorinated Polyvinyl Chloride² (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
 Solvent Cement¹
 CSA B137.6-2009 in B137
 ASTM F 493-2010
 CSA B137.6-2009 in B137

- 3) Copper/Copper Alloy Pipe²
 - ASTM B 42-2010
 - ASTM B 302-2012
 - AWWA C606-2011
- 4) Copper/Copper Alloy Tubing²
 - ASTM B 88-2009
- 5) Cross Linked Polyethylene²
 - Distribution Systems
 - ASTM F 876-2013a
 - ASTM F 877-2011a
 - ASTM F 1807-2012
 - ASTM F 1960-2012
 - ASTM F 2080-2012
 - ASTM F 2098-2008
 - ASTM F 2159-2011
 - ASSE 1061-2011
 - CSA B137.5-2009 in B137
 - Joints

~~6)~~ Galvanized Steel Pipe²

- ~~ASTM A 53-2012~~
- ~~AWWA C606-2011~~

~~7)~~ Poly Butylene (PB) Pipe/Tubing²

- ~~CSA B137.8-2009 in B137~~

~~68)~~ Polypropylene Pipe²

- ASTM F 2389-2010

~~79)~~ 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
- ASTM D 2855-2010
- ASTM F 441/F 441M-2012
- CSA B137.2-2009 in B137
- CSA B137.3-2009 in B137
- ASTM F 656-2010
- ASTM D 2564-2012
- CSA B137.3-2009 in B137

Joints

Primer

Solvent Cement¹

~~840)~~ Stainless Steel Pipe²

- ASTM A 312/A 312M-2012
- ASTM A 403/A 403M-2012
- ASTM A 511/A 511M-2012

~~944)~~ Welded Copper Water Tube²

- ASTM B 447-2012a WK, WL

and WM

ASTM B 32-2008

1042) Solder

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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 1037-1990
CSA B125.3-2011 |

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|-----|---|---|
| 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) |

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3052 Agency Note:

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3054 The water pressure at each fixture installation shall meet the manufacturer's minimum
3055 recommended level for the fixture.

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3057 **Approved Standards for Plumbing**

3058 **Appliances/Appurtenances/Devices**

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|----|--|--|
| 1) | Anti-Backflow Freezeless Wall Hydrants | ASSE 1019-2011
ASME A112.18.1-2012/CSA
B125.1-2012 |
| 2) | Anti-Scald Control Valve | ASSE 1016-2011/ASME |

A112.1016-2011/CSA B125.16-2011

- 3) Anti-siphon Self-Drain Frost Proof Sillcock ASSE 1019-2011
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 1055-2009
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 1004-2008
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

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|-----|---|---|
| 17) | Drinking Water Treatment Units – Health Effects | NSF/ANSI 53-2011a |
| 18) | Drinking Water Treatment Units – Aesthetic Effects | NSF/ANSI 42-2011 |
| 19) | Drinking Water Treatment Chemicals | NSF/ANSI 60-2012 |
| 20) | Dual Check Valve | ASSE 1024-2004
CSA B64-2011 |
| 21) | Dual 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

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|-----|--|---|
| 28) | Grease Interceptors | PDI-G 101-2010
ASME A112.14.3-2000 (R2004) |
| 29) | Handheld Showers | ASSE 1014-2005
ASSE 1016-2011/ASME
A112.1016-2011/CSA B125.16-2011 |
| 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 | A112.1016-2011/CSA B125.16-2011 |
| | Temperature Actuated Mixing Valves for Hot
Water Distribution | ASSE 1017-2009 |
| | Automatic Temperature Control Mixing Valves | ASSE 1069-2005 |

	Water Temperature Limiting Devices	ASSE 1070-2004
	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 1037-1990
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

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|-----|---|--|
| 45) | Trap Seal Primer Valve | ASSE 1018-2001
CSA B125.3-2012 |
| 46) | Vacuum Breakers, Anti-siphon | ASSE 1001-2008
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 1002-2008
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 Equipment~~Softener~~ and Treatment Devices NSF/ANSI 44-2012

58) Drinking Water System Component NSF/ANSI 61-2016

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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 _____)

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3069 **Section 890.APPENDIX B Illustrations for Subpart A**

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3071 **Section 890.ILLUSTRATION K Dead End (Repealed)**

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3073 ~~(Referenced in Section 890.120, Definition of "Dead End.")~~

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3075 (Source: Repealed at 43 Ill. Reg. _____, effective _____)

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3078 **Section 890.APPENDIX C Illustrations for Subpart C**

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3080 **Section 890.ILLUSTRATION A Caulked Joints (Repealed)**

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3082 ~~(Referenced in Section 890.320(a))~~

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3084 (Source: Repealed at 43 Ill. Reg. _____, effective _____)

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3086 Section 890.APPENDIX C Illustrations for Subpart C

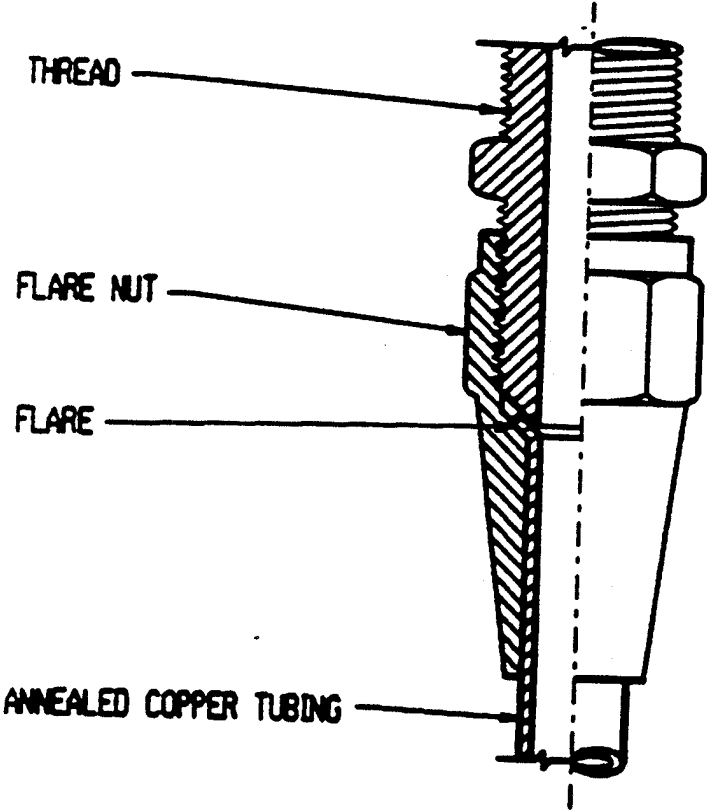
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3088 Section 890.ILLUSTRATION B Flared Joints

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3090 [\(Referenced in Section 890.320\(e\)\)](#)

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3094 (Source: Amended at 43 Ill. Reg. _____, effective _____)

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3096 **Section 890.APPENDIX C Illustrations for Subpart C**

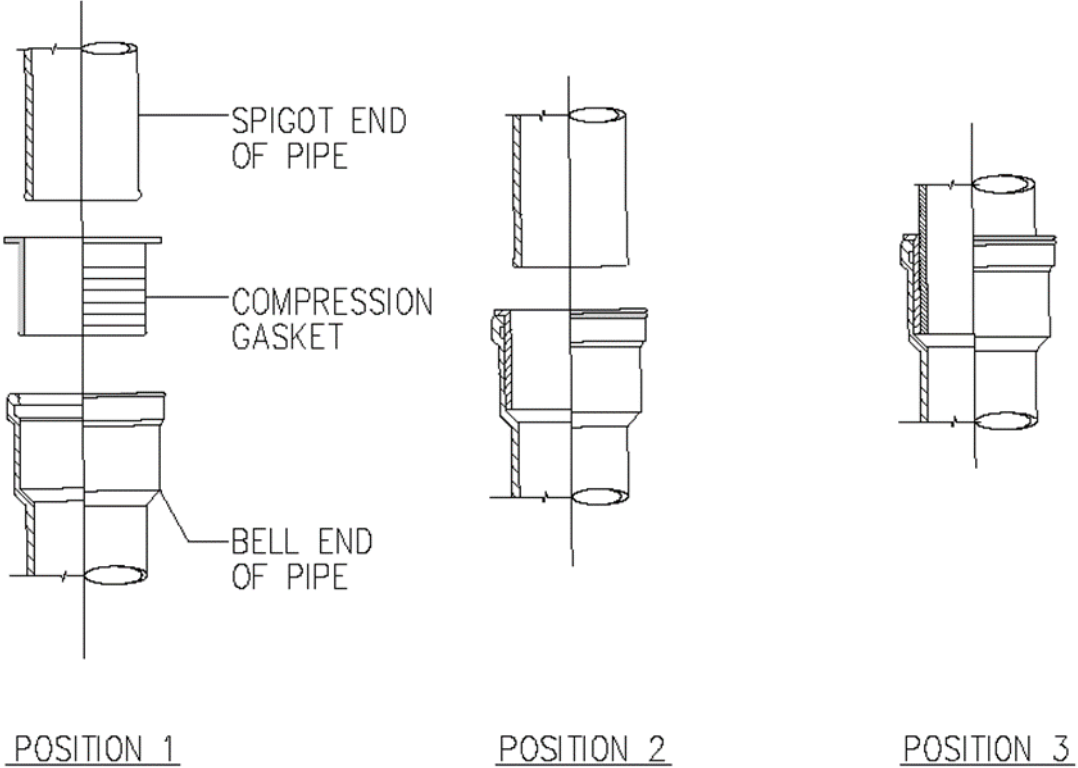
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3098 **Section 890.ILLUSTRATION C Positions of Application for Compression Type Joints**

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3100 ~~(Referenced in Section 890.320(o)(1))~~

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3103

3104 (Source: Amended at 43 Ill. Reg. _____, effective _____)