

Chapter SPS 381

DEFINITIONS AND STANDARDS

SPS 381.01 Definitions.

SPS 381.20 Incorporation of standards by reference.

Note: Chapter Comm 81 was renumbered chapter SPS 381 under s. 13.92 (4) (b) 1., Stats., Register December 2011 No. 672.

SPS 381.01 Definitions. In chs. SPS 381 to 387, except as otherwise specifically defined:

(1) “Accepted engineering practice” means a specification, standard, guideline or procedure in the field of plumbing or related thereto, generally recognized and accepted as authoritative documented through national standards or specifications.

(2) “Accessible” when applied to a fixture, appliance, pipe, fitting, valve or equipment, means having access for maintenance, but which first may require the removal of an access panel or similar obstruction.

(2m) “Accessory building” means a detached building, not used as a dwelling unit but is incidental to that of the dwelling.

(2r) “Adult day care center” or “ADCC” has the meaning given in s. DHS 105.14 (1) (b) 5.

(3) “Aerobic treatment component” means a unit for the treatment of wastewater that utilizes the principle of oxidation for biological decomposition.

(4) “Agent” means an individual or agency recognized by the department to act on the department’s behalf relative to a specific activity or function.

(4m) “Air admittance valve” or “AAV” means a device designed to allow air to enter the drainage system to balance the pressure and prevent siphonage of the water trap when negative pressure develops in the system.

(5) “Air-break” means a piping arrangement for a drain system where the wastes from a fixture, appliance, appurtenance or device discharge by means of indirect or local waste piping terminating in a receptor at a point below the flood level rim of the receptor and above the outlet of the trap serving the receptor.

(6) “Air-gap, drain system” means the unobstructed vertical distance through the free atmosphere between the outlet of indirect or local waste piping and the flood level rim of the receptor into which it discharges.

(7) “Air-gap, water supply system” means 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 or spill level of the receptacle.

(7e) “Alternate plumbing system” means a type of plumbing system designed in such a manner that valid and reliable data shall demonstrate to the department that the plumbing system is in compliance with the intent of chs. SPS 381 to 384.

(7m) “Ambulatory surgery center” means a health care facility that accepts federal funding in accordance with 42 CFR 416 of the federal register for health care finance and where 4 or more individuals that undergo a surgical procedure for which federal reimbursement is based.

(8) “Anaerobic treatment component” means a unit for the treatment of wastewater which utilizes molecular oxygen in the absence of free oxygen for biological respiration and decomposition.

(9) “Approved” means acceptance documented in writing by the department.

(10) “Appurtenance” means a manufactured device or prefabricated assembly of component parts which is an adjunct to a plumbing product or plumbing system.

(11) “Area drain” means a receptor designed to collect storm waters from an open area.

(12) “Areawide water quality management plan” means those plans prepared by the department of natural resources, including those plans prepared by agencies designated by the governor under the authority of ss. 281.11, 281.12 (1), 281.15, and 283.83, Stats., for the purpose of managing, protecting and enhancing groundwater and surface water of the state.

Note: See ch. SPS 382 Appendix for a list of water quality management agencies and their addresses.

(13) “Aspirator” means a fitting or device supplied with water or other fluid under positive pressure which passes through an integral orifice or constriction causing a vacuum.

(13e) “Atmospheric type vacuum breaker” means a type of cross connection control device where the flow of water into the device causes a float to close an air inlet port and when the flow of water stops the float falls and forms a check valve against back siphonage and at the same time opens the air inlet port to allow air to enter and satisfy the vacuum.

(13m) “At-risk” means a POWTS serving a new public or commercial facility that may produce influent to a POWTS treatment or dispersal component, consisting in part of in situ soil in excess of the quantities specified in s. SPS 383.44 (2). This definition does not include existing facilities where the influent has been tested and determined to produce influent below the quantities specified in s. SPS 383.44 (2) or facilities that are known to produce influent exceeding the influent quantities.

(14) “Autopsy table” means a fixture or table used for post-mortem examination.

(15) “Automatic fire sprinkler system” has the meaning specified under s. 145.01 (2), Stats.

Note: Section 145.01 (2), Stats., reads: “Automatic fire sprinkler system”, for fire protection purposes, means an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply, such as a gravity tank, fire pump, reservoir or pressure tank or connection beginning at the supply side of an approved gate valve located at or near the property line where the pipe or piping system provides water used exclusively for fire protection and related appurtenances and to standpipes connected to automatic sprinkler systems. The portion of the sprinkler system above ground is a network of specially sized or hydraulically designed piping installed in a building, structure or area, generally overhead, and to which sprinklers are connected in a systematic pattern. The system includes a controlling valve and a device for actuating an alarm when the system is in operation. The system is usually activated by heat from a fire and discharges water over the fire area.

(16) “Backflow” means the unwanted reverse flow of liquids, solids or gases.

(17) “Back pressure” means a pressure greater than the supply pressure that may cause backflow.

(17e) “Backflow preventer” means any generic backflow prevention method, device, or assembly.

(18) “Backflow preventer with an intermediate atmospheric vent” means a cross connection control device having 2 independently operating check valves separated by an intermediate chamber with a means for automatically venting it to the atmosphere. This can be installed in the horizontal, vertical up, or vertical down orientations. The check valves are force-loaded to a normally

closed position and the venting means is force-loaded to a normally open position.

(19) “Back siphonage” means the creation of a backflow as a result of negative pressure.

(21) “Backwater valve” means a device designed to prevent the reverse flow of wastewater in a drain system.

(22) “Ballcock” means a water supply valve opened or closed by means of a float or similar device used to supply water to a tank.

(22m) “Barometric loop” means a continuous section of supply piping that abruptly rises to a height of approximately 35 feet before returning to the originating level. Barometric loop is used to protect against back-siphonage but not against back pressure.

(23) “Bathroom group” means a water closet, lavatory and a bathtub or shower located together on the same floor level.

(24) “Battery of fixtures” means any group of 2 or more fixtures that discharge into the same horizontal branch drain.

(25) “Bedpan sterilizer” means a fixture used for sterilizing bedpans or urinals by direct application of steam, boiling water or chemicals.

(26) “Bedpan washer and sanitizer” means a fixture designed to wash bedpans and to flush the contents into the sanitary drain system and which may also provide for disinfecting utensils by scalding with steam or hot water.

(27) “Bedpan washer hose” means a device supplied with hot or cold water, or both, and located adjacent to a water closet or clinical sink to be used for cleansing bedpans.

(28) “Bedrock” means rock that is exposed at the earth’s surface or underlies soil material and includes:

(a) Weathered in-place consolidated material, larger than 2 mm in size and greater than 50% by volume; and

(b) Weakly consolidated sandstone at the point of increased resistance to penetration of a knife blade.

(29) “Bell” means the portion of a pipe that is enlarged to receive the end of another pipe of the same diameter for the purpose of making a joint.

(30) “Bench mark” or “BM” means a permanently established point, the elevation of which is assumed or known, which serves as a vertical reference point, and which may also serve as a horizontal reference point.

(30m) “Bidet sprayer” means a component of a personal hygiene device intended for genital and perineal cleanliness and intended for installation in water closets and water closet seats.

(31) “Blackwater” means wastewater contaminated by human body waste, toilet paper and any other material intended to be deposited in a receptor designed to receive urine or feces.

(32) “BOD₅” or “biochemical oxygen demand 5 day” means a measure of the amount of biodegradable organic matter in water.

(33) “Boiler blow-off basin” means a vessel designed to receive the discharge from a boiler blow-off outlet and to cool the discharge to a temperature that permits safe entry into the drain system.

(34) “Branch” means a part of a piping system other than a riser, main or stack.

(35) “Branch interval” means a vertical measurement of distance, 8 feet or more in length, between the connections of horizontal branches to a drainage stack.

Note: See ch. SPS 382 Appendix for explanatory material.

(35m) “Branch tailpiece” means a fitting or combination of fittings consisting of a combination tail piece and a wye.

(36) “Branch vent” means a vent serving more than one fixture drain.

(37) “B.T.U.” means British Thermal Units.

(38) “Building” means a structure for support, shelter or enclosure of persons or property.

(39) “Building drain” means horizontal piping within or under the fully enclosed portion of a building, installed below the

lowest fixture or the lowest floor level from which fixtures can drain by gravity to the building sewer.

(40) “Building drain branch” means a fixture drain which is individually connected to a building drain and is vented by means of a combination drain and vent system.

(41) “Building drain, sanitary” means a building drain which conveys wastewater consisting in part of domestic wastewater.

(42) “Building drain, storm” means a building drain which conveys storm water, clear water, or both.

(43) “Building permit” means any written permission from a municipality that allows construction to commence on a structure.

(44) “Building sewer” means that part of the drain system not within or under the fully enclosed portion of a building which conveys its discharge to a public sewer, private interceptor main sewer, private onsite wastewater treatment system, or other point of discharge or dispersal.

(45) “Building sewer, sanitary” means a building sewer which conveys wastewater consisting in part of domestic wastewater.

(46) “Building sewer, storm” means a building sewer which conveys storm water, clear water, or both.

(47) “Building subdrain” means the horizontal portion of a drain system which does not flow by gravity to the building sewer.

(48) “Building subdrain branch” means a fixture drain which is individually connected to a building subdrain and is vented by means of a combination drain and vent system.

(49) “Burr” means a roughness or metal protruding from the walls of a pipe usually as the result of cutting the pipe.

(50) “Business establishment” means any industrial or commercial organization or enterprise operated for profit, including but not limited to a proprietorship, partnership, firm, business trust, joint venture, syndicate, corporation or association.

(50c) “Campground or recreational vehicle park drain system, sanitary” means all piping or any portion thereof, within public or private premises, that conveys domestic wastewater from a campground or recreational vehicle park.

(50e) “Campground or recreational vehicle park drain system, storm” means all plumbing or any portion thereof, within public or private premises, that conveys any of the following:

(a) Storm water from a campground or recreational vehicle park.

(b) Groundwater from a campground or recreational vehicle park.

(c) Clear water from a campground or recreational vehicle park.

(50h) “Campground or recreational vehicle park water supply system” means the piping through which potable water is conveyed to points of usages intended to serve sites in a campground or recreational vehicle park.

(50L) “Camping trailer” has the definition under s. 340.01 (6m), Stats.

(50m) “Camping unit” has the meaning given in s. SPS 327.08 (9).

(50r) “Camping unit transfer tank” means a type of portable container used to collect and hold wastewater discharges generated by an individual camping unit.

(51) “Campsite receptor” means the vertical drain piping and trap combination that receives wastewater from recreational vehicles.

(52) “Catch basin” means a watertight receptacle built to arrest sediment of surface, subsoil or other waste drainage, and to retain oily or greasy wastes, so as to prevent their entrance into the building drain or building sewer.

(53) “Cesspool” means an excavation which receives domestic wastewater by means of a drain system without pretreatment of the wastewater and retains the organic matter and solids permitting the liquids to seep from the excavation.

(54) “Circuit vent” means a method of venting 2 to 8 traps or trapped fixtures without providing an individual vent for each trap or fixture.

(55) “Cleanout” means an accessible opening in a drain system used for the removal of obstructions.

(56) “Clear water” means wastewater other than storm water, having no impurities or where impurities are below a minimum concentration considered harmful by the department, including but not limited to noncontact cooling water and condensate drainage from refrigeration compressors and air conditioning equipment, drainage of water used for equipment chilling purposes and cooled condensate from steam heating systems or other equipment.

(56e) “Clinic sink” means a fixture having an integral trap and a flushing rim so that water cleanses the interior surface.

Note: This fixture has flushing and cleansing characteristics similar to a water closet. A clinic sink may also be referred to as a clinic service sink, a bedpan washing sink or a flushing rim sink.

(57) “Cold water” means water at a temperature less than 85°F.

(58) “Combination fixture” means a fixture combining one sink and laundry tray or a 2- or 3-compartment sink or laundry tray in one unit.

(59) “Combination drain and vent system” means a specially designed system of drain piping embodying the wet venting of one or more fixtures by means of a common drain and vent pipe adequately sized to provide free movement of air in the piping.

(59m) “Combination private water main” means a private water main that serves a fire protection system and any number of plumbing fixtures.

(59s) “Combination water service” means a water service that serves a fire protection system and any number of plumbing fixtures.

(60) “Common vent” means a branch vent connecting at or downstream from the junction of 2 fixture drains and serving as a vent for those fixture drains.

(60e) “Community-based residential facility” has the meaning specified under s. 50.01 (1g), Stats.

Note: Section 50.01 (1g), Stats., reads:

“Community-based residential facility” means a place where 5 or more adults who are not related to the operator or administrator and who do not require care above intermediate level nursing care reside and receive care, treatment or services that are above the level of room and board but that include no more than 3 hours of nursing care per week per resident. “Community-based residential facility” does not include any of the following:

(a) A convent or facility owned or operated by members of a religious order exclusively for the reception and care or treatment of members of that order.

(b) A facility or private home that provides care, treatment, and services only for victims of domestic abuse, as defined in s. 49.165 (1) (a), Stats., and their children.

(c) A shelter facility as defined under s. 16.308 (1) (d), Stats.

(d) A place that provides lodging for individuals and in which all of the following conditions are met:

1. Each lodged individual is able to exit the place under emergency conditions without the assistance of another individual.

2. No lodged individual receives from the owner, manager or operator of the place or the owner’s, manager’s or operator’s agent or employee any of the following:

a. Personal care, supervision or treatment, or management, control or supervision of prescription medications.

b. Care or services other than board, information, referral, advocacy or job guidance; location and coordination of social services by an agency that is not affiliated with the owner, manager or operator, for which arrangements were made for an individual before he or she lodged in the place; or, in the case of an emergency, arrangement for the provision of health care or social services by an agency that is not affiliated with the owner, manager or operator.

(e) An adult family home.

(f) A residential care apartment complex.

(g) A residential facility in the village of Union Grove that was authorized to operate without a license under a final judgment entered by a court before January 1, 1982, and that continues to comply with the judgment notwithstanding the expiration of the judgment.

(61) “Conductor” means a drain pipe inside the building which conveys storm water from a roof to the storm drain or storm sewer.

(61m) “Containment” means the installation of a cross connection control method, device or assembly to prohibit the flow

of contamination from a building or facility into a water supply system.

(62) “Contaminant load” means the concentrations of substances in a wastewater stream.

(62e) “Containment tank” means a device with a valved outlet designed to temporarily hold potentially hazardous wastewater for evaluation before discharging to a POWTS or municipal sewer.

(62m) “Continuous pressure” means a pressure greater than atmospheric and exerted for a period of more than 12 continuous hours.

(62s) “Conveyance system” means that portion of a drain system that consists of a series of pipes that transport water from one area to another without providing detention.

(63) “Corporation cock” means a valve:

(a) Installed in a private water main or a water service at or near the connection to a public water main; or

(b) Installed in the side of a forced main sewer to which a forced building sewer is connected.

(64) “Critical level” means the reference point on a vacuum breaker that must be submerged before backflow can occur. When the critical level is not indicated on the vacuum breaker, the bottom of the vacuum breaker shall be considered the critical level.

(65) “Cross connection” means a connection or potential connection between any part of a water supply system and another environment containing substances in a manner that, under any circumstances, would allow the substances to enter the water supply system by means of back siphonage or back pressure.

(65m) “Cross connection control assembly” means a mechanical backflow preventer used to prevent backflow into a water supply system that requires shut-off valves and a test cock or test cocks to meet any specific standard, such as a reduced pressure principle backflow preventer, a double check backflow preventer, a pressure vacuum breaker, or a spill resistant vacuum breaker.

(66) “Cross connection control device” means a mechanical backflow preventer used to prevent backflow into a water supply system that does not require a shut-off valve or test cock to meet any specific standard, such as an atmospheric type vacuum breaker, a hose connection vacuum breaker, or a backflow preventer with an atmospheric vent.

(66m) “Cross connection control method” means a mechanism used to prevent backflow into a water supply system other than a backflow prevention device or backflow prevention assembly, such as an air gap, vacuum breaker tee, or barometric loop.

(67) “Curb stop” means a valve placed in a water service or a private water main, usually near the lot line.

(68) “Dead end” means a branch leading from a drain pipe, vent pipe, building drain or building sewer and terminating at a developed length of 2 feet or more by means of a plug, cap or other closed fitting.

(69) “Department” means the department of safety and professional services.

(70) “Design wastewater flow” means 150% of the estimated wastewater flow generated by a dwelling, building or facility.

(70m) “Detention” means the collection and temporary storage of water for subsequent gradual discharge.

(71) “Determination of failure” has the meaning specified under s. 145.245 (1) (a), Stats.

(72) “Developed length” means the length of pipe line measured along the centerline of the pipe and fittings.

(72e) “Dfu” means drainage fixture unit.

(73) “Diameter” means in reference to a pipe the nominal inside diameter of the pipe.

(73e) “Dishwasher, commercial-type” or “dishwashing machine, commercial-type” means a machine or appliance that is

manufactured and marketed for a use other than residential that mechanically washes, rinses, and sanitizes dishes or utensils and discharges to the plumbing drainage system.

(73m) “Dishwasher, residential–type” or “Dishwashing machine, residential–type” means a machine or appliance manufactured and marketed for residential use that mechanically washes, rinses, and sanitizes dishes or utensils and discharges to the plumbing drainage system.

(73s) “Disinfection” means the process of killing or inactivating microorganisms, particularly pathogens.

(74) “Disinfection unit” means a type of POWTS treatment component, excluding a soil–based POWTS treatment component, that utilizes a chemical or photoelectric process to reduce the wastewater fecal coliform contaminant load.

(75) “Dispersal zone” means a dimensional volume of in situ soil that receives wastewater for treatment or distributes final effluent for dispersal.

(76) “Distribution cell” means a dimensional zone that is part of a POWTS treatment or dispersal component where wastewater is disseminated into in situ soil or engineered soil.

(77) “Documented data” means data which is developed in accordance with scientifically valid analytical protocols including field trials where appropriate, is subjected to peer review, results from more than one study, and consistent with other credible research.

(78) “Domestic wastewater” means the type of wastewater, not including storm water, normally discharged from or similar to that discharged from plumbing fixtures, appliances and devices including, but not limited to sanitary, bath, laundry, dishwashing, garbage disposal and cleaning wastewaters.

(79) “Double check backflow prevention assembly” means a cross connection control assembly consisting of 2 independently acting check valves, internally force–loaded to a normally closed position, 2 tightly closing shut–off valves that are properly located, and test cocks that are properly located.

(80) “Double check detector fire protection backflow preventer–assembly” means an assembly serving a fire protection system and consisting of 2 independently acting check valves, internally forced loaded to a normally closed position, 2 tightly closing shut–off valves, and properly located test cocks which also includes a parallel flow meter to indicate leakage or unauthorized use of water downstream of the assembly.

(80m) “Double check fire protection backflow prevention assembly” means an assembly serving a fire protection system and consisting of 2 independently acting check valves, internally forced loaded to a normally closed position, 2 tightly closing shut–off valves, and properly located test cocks. The term “double check valve backflow preventer for fire protection systems” has the same meaning as double check fire protection backflow prevention assembly.

(81) “Drain” means any pipe that carries wastewater or water–borne wastes.

(82) “Drain system” includes all the piping or any portion of the piping within public or private premises which conveys wastewater to a legal point of disposal, but does not include the mains of public sewer systems or a private onsite wastewater treatment system or public sewage treatment or disposal plant.

(82e) “Dual check backflow preventer wall hydrant–freeze resistant type” means a type of hose bibb that provides protection of the potable water supply from contamination due to backsiphonage or backpressure without damage to the device due to freezing, and is field testable to verify protection under the high hazard conditions present at a hose threaded outlet.

(82m) “Dual check valve type with atmospheric port backflow preventer” has the same meaning as specified in sub. (18).

(83) “Dwelling” means a structure, or that part of a structure, which is used or intended to be used as a home, residence or sleep-

ing place by one person or by 2 or more persons maintaining a common household, to the exclusion of all others.

(84) “Effluent” means liquid discharged from a process, device, appurtenance or piping system.

(85) “Ejector” means an automatically operated device to elevate wastewater by the use of air under higher than atmospheric pressure.

(86) “Elevation” or “EL” means the vertical distance from the datum to a point under investigation.

(87) “Enforcement standard” or “ES” has the meaning specified under s. 160.01 (2), Stats.

Note: Section 160.01 (2), Stats., reads:

“Enforcement standard” means a numerical value expressing the concentration of a substance in groundwater which is adopted under ss. 160.07 and 160.09.

(88) “Engineered soil” means a mineral product that is equivalent to in situ soil for which treatment capability has been credited under Table 383.44–3, or superior to in situ soil in its ability to treat or disperse domestic wastewater from a POWTS.

(89) “Engineered system” means a system designed to meet the intent of the code but not the enumerated specifications of the state plumbing code.

(90) “Estimated wastewater flow” means the typical quantity of domestic wastewater generated daily by a dwelling, building or facility.

(90e) “Experimental plumbing system” has the same meaning as experimental system as specified in sub. (91).

(90m) “Exam sink” means a plumbing fixture used for hand washing in health care and related facilities.

Note: An exam sink may also be referred to as a treatment sink.

(91) “Experimental system” means a type of plumbing system from which valid and reliable data are being sought to demonstrate compliance with the intent of chs. SPS 382 to 384.

(92) “Failing private onsite wastewater treatment system” has the meaning specified under s. 145.01 (4m), Stats.

(93) “Farm” means a parcel of 35 or more acres of contiguous land that is devoted primarily to agricultural use, as defined under s. 91.01 (2), Stats.

Note: Section 91.01 (2), Stats., reads:

(a) Any of the following activities conducted for the purpose of producing an income or livelihood:

1. Crop or forage production.
2. Keeping livestock.
3. Beekeeping.
4. Nursery, sod, or Christmas tree production.
- 4m. Floriculture.
5. Aquaculture.
6. Fur farming.
7. Forest management.
8. Enrolling land in a federal agricultural commodity payment program or a federal or state agricultural land conservation payment program.

(b) Any other use that the department, by rule, identifies as an agricultural use.

(93m) “Fats, oil, and grease” and “FOG” mean organic polar compounds derived from vegetable, plant, or animal sources that are composed of long chain triglycerides that are insoluble in water. Fats are generally solid particles, oils are usually liquid at room temperature, and grease is usually solid at room temperature.

(94) “Faucet” means a valve end of a water pipe by means of which water can be drawn from or held within the pipe.

(95) “Final effluent” means the effluent from the last POWTS treatment component.

(96) “Fixture drain” means the drain from a fixture to a junction with another drain pipe.

(97) “Fixture supply” means that portion of a water distribution system serving one plumbing fixture, appliance or piece of equipment.

(98) “Fixture supply connector” means that portion of water supply piping which connects a plumbing fixture, appliance or a piece of equipment to the water distribution system.

(99) “Fixture unit, drainage” or “dfu” means a measure of the probable discharge into the drain system by various types of plumbing fixtures. The drainage fixture unit value for a particular fixture depends on its volume rate of drainage discharge, on the time duration of a single drainage operation, and on the average time between successive operations.

(100) “Fixture unit, supply” or “sfu” means a measure of the probable hydraulic demand on the water supply by various types of plumbing fixtures.

Note: The supply fixture unit value for a particular fixture depends on its volume rate of supply, on the time duration of a single supply operation, and on the average time between successive operations.

(101) “Floodfringe” has the meaning specified under s. NR 116.03 (14).

Note: Section NR 116.03 (14) reads: “Floodfringe” means that portion of a floodplain which is outside of the floodway, which is covered by flood water during the regional flood. The term “floodfringe” is generally associated with standing water rather than flowing water.

(102) “Flood level rim” means the edge of the receptacle from which water overflows.

(103) “Floodplain” has the meaning specified under s. NR 116.03 (16).

Note: Section NR 116.03 (16) reads: “Floodplain” means that land which has been or may be covered by flood water during the regional flood. The floodplain includes the floodway, floodfringe, shallow depth flooding, flood storage and coastal floodplain areas.

(104) “Floodway” has the meaning specified under s. NR 116.03 (22).

Note: Section NR 116.03 (22) reads: “Floodway” means the channel of a river or stream, and those portions of the floodplain adjoining the channel required to carry the regional flood discharge.

(105) “Floor sink” means a receptor for the discharge from indirect or local waste piping installed with its flood level rim even with the surrounding floor.

(106) “Flow” means the volumetric measure of a liquid stream in a specified time.

(107) “Flushometer valve” means a device which discharges a predetermined quantity of water to fixtures for flushing purposes and is closed by direct water pressure.

(108) “Flush valve” means a device located at the bottom of a tank for flushing water closets and similar fixtures.

(108m) “Foundation drain” means a subsoil drain that serves the area of the foundation of a building.

(108s) “Freeze resistant sanitary yard hydrant with backflow protection” means a device, typically installed with a portion below ground surface, to supply potable water without danger of damage to the device due to freezing and to provide protection of the potable water supply and groundwater from contamination due to back-siphonage or back-pressure.

(109) “Garage, private” means a building or part of a building used for the storage of vehicles or other purposes, by a family or less than 3 persons not of the same family and which is not available for public use.

(110) “Garage, public” means a building or part of a building which accommodates or houses self-propelled land, air or water vehicles for 3 or more persons not of the same family.

(111) “Governmental unit” has the meaning specified under s. 145.01 (5), Stats.

(112) “Graywater” means wastewater contaminated by waste materials, exclusive of urine, feces or industrial waste, deposited into plumbing drain systems.

(113) “Grease interceptor” means a receptacle designed to intercept and retain or remove grease or fatty substances.

(114) “Groundwater” has the meaning specified under s. 160.01 (4), Stats.

(115) “Hand-held shower” means a hose and a hand-held discharge piece such as a shower head or spray connecting to a fixture fitting.

(116) “Health care facility” means a hospital, nursing home, community-based residential facility, or ambulatory surgery center.

(117) “Health care plumbing appliance” means a plumbing appliance used in health care facilities and health care related facilities, the function of which involves a potential for exposure to infectious wastes. Examples of health care plumbing appliances include autoclaves, dialysis units, endoscope reprocessors, sterilizers, surgical suction systems, therapeutic tubs, and washer or disinfectant units. Examples of appliances or fixtures that are not regarded as health care plumbing appliances are auto-analyzers, bathtubs, high-purity water systems, and wheelchair washers.

(117m) “Health care related facility” means an assisted living, residential care apartment complex, memory care, infirmary, inpatient mental health center, inpatient hospice, adult day care center, renal dialysis center, facility for the developmentally disabled, institute for mental disease, urgent care center, medical clinic or office, dental clinic or office, residential care center for children and youth, or school of medicine, surgery, or dentistry.

(118) “High groundwater” means zones of soil saturation which include perched water tables, shallow regional groundwater tables or aquifers, or zones that are seasonally, periodically or permanently saturated.

(119) “High groundwater elevation” means the higher of either the elevation to which the soil is saturated when observed as a free water surface, or the elevation to which the soil has been seasonally or periodically saturated as indicated by the highest elevation of redoximorphic features in the soil profile.

(120) “High hazard” means a situation where the water supply system could be contaminated with a toxic substance or solution so as to make the water unsuitable for the designated use.

(121) “Holding tank” means a watertight receptacle for the collection and holding of wastewater.

(122) “Horizontal pipe” means any pipe or fitting which makes an angle of less than 45° with the horizontal.

(123) “Horizontal reference point” means a stationary, identifiable point to which horizontal dimensions can be related.

(124) “Hose connection backflow preventer” means a type of cross connection control device which consists of 2 independent checks, force-loaded or biased to a closed position, with an atmospheric vent located between the 2 check valves, which is force-loaded or biased to an open position, and a means for attaching a hose.

(125) “Hose connection vacuum breaker” means a type of cross connection control device which consists of a check valve member force-loaded or biased to a closed position and an atmospheric vent valve or means force-loaded or biased to an open position when the device is not under pressure.

(126) “Hot water” means water at a temperature of 110° F. or more.

(127) “Hot water storage tank” means a tank used to store water that is heated indirectly by a circulating water heater or by steam or hot water circulating through coils or by other heat exchange methods internal or external to the tank.

(128) “Human health hazard” has the meaning specified under s. 254.01 (2), Stats.

Note: Section 254.01 (2), Stats., reads: “Human health hazard” means a substance, activity or condition that is known to have the potential to cause acute or chronic illness, to endanger life, to generate or spread infectious diseases, or otherwise injuriously to affect the health of the public.

(129) “Hydrostatic test” means a test performed on a plumbing system or portion thereof in which the system is filled with a liquid, normally water, and raised to a designated pressure.

(129m) “Imminent health hazard” means a significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or ces-

sation of operation to prevent injury or illness based on any of the following:

- (a) The number of potential injuries or illnesses.
- (b) The nature, severity, or duration of the potential injury or illness.

(130) “Indian lands” means lands owned by the United States and held for the use or benefit of Indian tribes or bands or individual Indians, and lands within the boundaries of a federally recognized reservation that are owned by Indian tribes or bands or individual Indians.

(131) “Indirect waste piping” means drain piping which does not connect directly with the drain system, but which discharges into the drain system by means of an air break or air gap into a receptor.

(132) “Individual vent” means a pipe installed to vent a fixture trap.

(133) “Industrial wastewater” means the liquid wastes that result from industrial processes.

(133s) “Infiltration component” means any device or method that is intended to promote the assimilation of water into in situ soil.

(134) “Infiltrative surface” means the plane within a treatment or dispersal component at which effluent is applied to in situ soil or engineered soil.

(135) “In situ soil” means soil naturally formed or deposited in its present location or position and includes soil material that has been plowed using normal tillage implements and depositional material resulting from erosion or flooding.

(136) “Interceptor” or “separator” means a device designed and installed so as to separate and retain deleterious, hazardous or undesirable matter from wastes flowing through it.

(136s) “Irrigation” means the application of water to the root zone of plants or plantings.

(137) “Laboratory faucet backflow preventer” means a type of cross connection control device which consists of 2 independently acting check valves force-loaded or biased to a closed position and, between the check valves, a means for automatically venting to atmosphere which is force-loaded or biased to an open position.

(138) “Laboratory plumbing appliance” means a plumbing appliance, the function of which is unique to scientific experimentation or research activities.

(138m) “Lavatory” means a sink or washbasin designed for washing of the hands and face.

(139) “Leaching chamber” means a product designed to support soil and create a cavity for the temporary storage of effluent and to provide an infiltrative surface for the distribution cell POWTS dispersal or treatment component.

(140) “Leader” means a pipe or channel outside a building which conveys storm water from the roof or gutter drains to a storm drain, storm sewer or to grade.

(141) “Lead-free” means:

- (a) When used with respect to solders and flux, containing not more than 0.2 percent lead.
- (b) When used with respect to pipe and pipe fittings and fixtures, containing not more than 8.0 percent lead.
- (c) When used with respect to the wetted surface material of pipe and pipe fittings and fixtures, containing a weighted average of not more than 0.25 percent lead.

Note: Calculation procedures for determining the weighted average lead concentration in a product that consists of several components are listed in NSF/ANSI Standard 61, annex G, including how to comply with amended sec. 1417(d)(2) of the federal Safe Drinking Water Act (SDWA) of 2011.

(142) “Linear loading rate” means the amount of effluent applied daily along the landscape contour expressed in gallons per day per linear foot along a site contour.

(143) “Load factor” means the percentage of the total connected fixture unit flow rate which is likely to occur at any point in a drain system.

(144) “Local station” means a National Weather Service (NWS) precipitation station or other station accepted by the department as collecting precipitation data in accordance with NWS methods.

(145) “Local waste piping” means a portion of drain piping which receives the wastes discharged from indirect waste piping and which discharges those wastes by means of an air break or air gap into a receptor.

(146) “Local vent” means a pipe connecting to a fixture and extending to outside air through which vapor or foul air is removed from the fixture.

(147) “Low hazard” means a situation where the water supply system could be contaminated with a nontoxic substance or solution so as to make the water unsuitable for the designated use.

(148) “Main” means the principal pipe artery to which branches may be connected.

(149) “Manhole” means an opening constructed to permit access by a person to a sewer or any underground portion of a plumbing system.

(151) “Manufactured home” has the meaning specified under s. 101.91 (2), Stats.

Note: Section 101.91 (2), Stats., reads:

“Manufactured home” means any of the following:

(am) A structure that is designed to be used as a dwelling with or without a permanent foundation and that is certified by the federal department of housing and urban development as complying with the standards established under 42 USC 5401 to 5425.

(c). A mobile home, unless a mobile home is specifically excluded under the applicable statute.

(152) “Manufactured home drain connector” means the pipe that joins the drain piping for a manufactured home to the building sewer.

(153) “Manufactured home community” has the meaning specified under s. 101.91 (5m), Stats.

Note: Section 101.91 (5m), Stats., reads:

“Manufactured home community” means any plot or plots of ground upon which 3 or more manufactured homes that are occupied for dwelling or sleeping purposes are located. “Manufactured home community” does not include a farm where the occupants of the manufactured homes are the father, mother, son, daughter, brother or sister of the farm owner or operator or where the occupants of the manufactured homes work on the farm.

(153e) “Manufactured home community drain system, sanitary” means all piping or any portion thereof, within public or private premises, which conveys domestic wastewater from a manufactured home in a manufactured home community.

(153m) “Manufactured home community drain system, storm” means all piping or any portion thereof, within public or private premises, that conveys any of the following:

- (a) Storm water from a manufactured home community.
- (b) Groundwater from a manufactured home community.
- (c) Clear water from a manufactured home community.

(153s) “Manufactured home community water supply system” means the piping through which potable water is conveyed to points of connection to a manufactured home or homes in a manufactured home community.

(154) “Mechanical joint” means a connection between pipes, fittings or pipes and fittings by means of a device, coupling, fitting or adapter where compression is applied around the center line of the pieces being joined, but which is not caulked, threaded, soldered, solvent cemented, brazed or welded.

(154g) “Medical or high purity water” means water that has uncommon stringent specifications with specific resistance measured in microsiemens per centimeter ($\mu\text{S}/\text{cm}$) or megohm-centimeters ($\text{Mohm}\cdot\text{cm}$).

(154m) “Mixed wastewater” means a combination of domestic and non-domestic wastewater.

(155) “Multiple dwelling” means a building containing more than 2 dwelling units.

(156) “Multipurpose piping system” means a water distribution system conveying water to plumbing fixtures and appliances and automatic fire sprinklers with the intention of serving both domestic and fire protection needs.

(157) “Municipality” means any city, village, town or county in this state.

(158) “Munsell soil color” means a color classification that specifies the relative degrees of the color variables in terms of hue, value and chroma.

(159) “Navigable waters” has the meaning specified under s. NR 115.03 (5).

Note: Section NR 115.03 (5) reads:

“Navigable waters” means Lake Superior, Lake Michigan, all natural inland lakes within Wisconsin and all streams, ponds, sloughs, flowages and other waters within the territorial limits of this state, including the Wisconsin portion of boundary waters, which are navigable under the laws of this state. Under s. 281.31 (2) (d), Stats., notwithstanding any other provision of law or administrative rule promulgated thereunder, shoreland ordinances required under s. 59.692, Stats., and this chapter do not apply to lands adjacent to farm drainage ditches if:

- (a) Such lands are not adjacent to a natural navigable stream or river;
- (b) Those parts of such drainage ditches adjacent to such lands were nonnavigable streams before ditching or had no previous stream history; and
- (c) Such lands are maintained in nonstructural agricultural use.

(160) “Negative pressure” means a pressure less than atmospheric.

(160e) “Noncontinuous pressure” means a pressure greater than atmospheric and exerted for a period of no more than 12 continuous hours.

(160m) “Non-domestic wastewater” means any wastewater that is not domestic wastewater or storm water.

(161) “Nonpotable water” means water not safe for drinking, personal or culinary use.

(162) “Nonpublic” means, in the classification of plumbing fixtures, those fixtures in residences, apartments, living units of hotels and motels, and other places where the fixtures are intended for the use by a family or an individual to the exclusion of all others.

(163) “Nontoxic” means a substance in the diluted form that meets one of the following requirements:

(a) Is listed by the National Sanitation Foundation (NSF) as meeting the NSF evaluation criteria for nonfood compounds.

(b) Is acceptable to the United States Food and Drug Administration (FDA) Title 21 section 175.300 of the Federal Regulation on Food Additives.

(c) Is acceptable for contact with potable water or is deemed non-toxic by a third party certification that is acceptable to the department.

(d) Is deemed non-toxic by the department.

(163e) “Nursing home” has the meaning specified under s. 50.01 (3), Stats.

Note: Section 50.01 (3), Stats., reads:

“Nursing home” means a place where 5 or more persons who are not related to the operator or administrator reside, receive care or treatment and, because of their mental or physical condition require access to 24-hour nursing services, including limited nursing care, intermediate level nursing care and skilled nursing services. “Nursing home” does not include any of the following:

- (c) A convent or facility owned or operated exclusively by and for members of a religious order that provides reception and care or treatment of an individual.
- (d) A hospice, as defined in s. 50.90 (1), Stats., that directly provides inpatient care.
- (e) A residential care apartment complex.

(163s) “Occasional occupancy” means occupying a building that is served by a POWTS for less than 120 calendar days per year.

(164) “Occupancy” means the purpose for which a building, structure, equipment, materials, or premises, or part thereof, is used or intended to be used.

(165) “Oil interceptor” means a device designed to intercept and retain oil, lubricating grease or other similar materials.

(166) “Offset” means a combination of fittings or bends that makes two changes in direction bringing one section of the pipe out of line but into a line parallel with the other section.

(167) “One or 2-family dwelling” means a building containing not more than 2 dwelling units.

(168) “Open air” means outside the building.

(168m) “Open bodies of water” means those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other surface water, natural or artificial, public or private within the state or under its jurisdiction.

(169) “Ordinary high-water mark” has the meaning specified under s. NR 115.03 (6).

Note: Section NR 115.03 (6), reads:

“Ordinary high-water mark” means the point on the bank or shore up to which the presence and action of surface water is so continuous as to leave a distinctive mark such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation, or other easily recognized characteristic. Where the bank or shore at any particular place is of such character that it is difficult or impossible to ascertain where the point of ordinary high-water mark is, recourse may be had to the opposite bank of a stream or to other places on the shore of a lake or flowage to determine whether a given stage of water is above or below the ordinary high-water mark.

(170) “Participating governmental unit” means a governmental unit which applies to the department for financial assistance under ss. SPS 387.04 and 387.05, and which meets the conditions specified under s. 145.245 (9), Stats.

(170e) “Patient area plumbing fixture” means a plumbing fixture that is accessible to patients in a health care facility and is intended to be used for culinary, hygienic or domestic purposes.

(171) “Peak flow” means the largest anticipated recurrent wastewater discharge to a private onsite wastewater treatment system.

(171e) “Peak flow, stormwater” means the largest anticipated flow from a given storm event.

(173) “Pit privy” means an enclosed nonportable toilet into which nonwater-carried human wastes are deposited to a subsurface storage chamber that is not watertight.

(174) “Pitch” means the gradient or slope of a line of pipe in reference to a horizontal plane.

(175) “Place of employment” has the meaning specified under s. 101.01 (11), Stats.

Note: Section 101.01 (11), Stats., reads:

“Place of employment” includes every place, whether indoors or out or underground and the premises appurtenant thereto where either temporarily or permanently any industry, trade or business is carried on, or where any process or operation, directly or indirectly related to any industry, trade or business, is carried on, and where any person is, directly or indirectly, employed by another for direct or indirect gain or profit, but does not include any place where persons are employed in private domestic service which does not involve the use of mechanical power or in farming. “Farming” includes those activities specified in s. 102.04 (3), and also includes the transportation of farm products, supplies or equipment directly to the farm by the operator of said farm or employees for the use thereon, if such activities are directly or indirectly for the purpose of producing commodities for market, or as an accessory to such production. When used with relation to building codes, “place of employment” does not include an adult family home, as defined in s. 50.01 (1), or, except for the purposes of s. 101.11, a previously constructed building used as a community-based residential facility, as defined in s. 50.01 (1g), which serves 20 or fewer unrelated residents.

(176) “Plumbing” has the meaning specified under s. 145.01 (10), Stats.

Note: Section 145.01 (10), Stats., reads:

“Plumbing” means:

(a) 1. All piping, fixtures, appliances, equipment, devices, and appurtenances in connection with water supply systems, water distribution systems, wastewater drainage systems, reclaimed water systems, and stormwater use systems, including hot water storage tanks, water treatment devices, and water heaters connected with these systems and also includes the installation thereof.

2. The construction, connection, installation, service, or repair of any drain or wastewater piping system that connects to the mains or other terminal within the bounds of, or beneath an area subject to easement for highway purposes, including private sewage systems and stormwater treatment and dispersal systems, and the alteration of any such systems, drains or wastewater piping.

3. The construction, connection, installation, service, or repair of water service piping that connects to the main or other water utility service terminal within the bounds of, or beneath an area subject to easement for highway purposes and its connections.

4. The water pressure system other than municipal systems as provided in ch. 281.

5. A plumbing and drainage system so designed and vent piping so installed as to keep the air within the system in free circulation and movement; to prevent with a margin of safety unequal air pressures of such force as might blow, siphon or affect trap seals, or retard the discharge from plumbing fixtures, or permit sewer air to escape into the building; to prohibit cross-connection, contamination or pollution of the water supply and distribution systems, and to provide an adequate supply of water to properly serve, cleanse and operate all fixtures, equipment, appurtenances and appliances served by the plumbing system.

(br) "Plumbing" does not include any of the following:

1. A rainwater gutter or downspout down to the point that it discharges into a plumbing system, a subsoil drain, or a foundation drain.

2g. A process water reuse system if the process water reuse system is not connected to any plumbing fixture or appliance.

2m. A stormwater culvert under a roadway or walkway that is placed there only to equalize the water level from one end of the culvert to the other end.

3. The practical installation of process piping within a sewage disposal plant.

(177) "Plumbing appliance" means any one of a special class of plumbing devices which is intended to perform a special function. The operation or control of the appliance may be dependent upon one or more energized components, such as motors, controls, heating elements, or pressure or temperature sensing elements. The devices may be manually adjusted or controlled by the user or operator, or may operate automatically through one or more of the following actions: a time cycle, a temperature range, a pressure range, or a measured volume or weight.

(178) "Plumbing fixture" means a receptacle or device which meets at least one of the following:

(a) Is either permanently or temporarily connected to the water supply system of the premises, and demands a supply of water from the system;

(b) Discharges wastewater or waste materials either directly or indirectly to the drain system of the premises.

(c) Requires both a water supply connection and a discharge to the drain system of the premises.

(179) "Plumbing system" includes the water supply system, the drain system, the vent system, plumbing fixtures, plumbing appliances and plumbing appurtenances that serve a building, structure or premises.

(180) "Point of standards application" has the meaning specified under s. 160.01 (5), Stats.

Note: Section 160.01 (5) Stats., reads:

"Point of standards application" means the specific location, depth or distance from a facility, activity or practice at which the concentration of a substance in groundwater is measured for purposes of determining whether a preventive action limit or an enforcement standard has been attained or exceeded.

(181) "Potable water" means water that is both:

(a) Safe for drinking, personal or culinary use.

(b) Free from impurities present in amounts sufficient to cause disease or harmful physiological effects.

(182) "POWTS" means a private onsite wastewater treatment system.

(183) "POWTS component" means any subsystem, subassembly or other system designed for use in or as part of a private onsite wastewater treatment system which may include treatment, dispersal or holding and related piping.

(183m) "POWTS component manual" means a document that contains detailed design, installation, and operation and maintenance procedures for POWTS components. A component manual that is approved under s. SPS 384.10 (3) (c) is an acceptable method under s. SPS 383.61.

(184) "POWTS dispersal component" means a device or method that is intended to promote the assimilation of treated wastewater by the environment.

(185) "POWTS holding component" means any receptacle intended to collect wastewater for a period of time, including holding and dosing tanks.

(186) "POWTS treatment component" means a device or method that is intended to reduce the contaminant load of wastewater.

(186s) "Pre-development" means the condition of the topography of vegetation, including that resulting from human activities that existed prior to land disturbance for construction.

(187) "Prefabricated plumbing" means concealed drain piping, vent piping or water supply or a combination of these types of piping, contained in a modular building component, which will not be visible for inspection when delivered to the final site of installation.

(187e) "Prefabricated sump and pump system" means a simple or duplex pump and sump designed as a combined unit.

(188) "Pressure relief valve" means a pressure actuated valve held closed by a spring or other means and designed to automatically relieve pressure at a designated pressure.

(189) "Pressure vacuum breaker assembly" means a type of cross connection control assembly which consists of an independently acting check valve force-loaded to the closed position and an independently acting air inlet valve located downstream of the check valve that is force-loaded to the open position. The assembly also includes two tightly closing shutoffs, one at the inlet of the assembly and one at the outlet of the assembly, and two tightly closing test cocks, one immediately upstream and one immediately downstream of the check valve.

(190) "Pressurized flushing device" means a device that uses the water supply to create a pressurized discharge to flush a fixture exclusive of gravity type flushing systems.

(191) "Preventive action limit" or "PAL" has the meaning as specified under s. 160.01 (6), Stats.

Note: Section 160.01 (6), Stats., reads:

"Prevention action limits" means a numerical value expressing the concentration of a substance in groundwater which is adopted under s. 160.15, Stats.

(192) "Principal residence" means a residence that is occupied at least 51% of the year by the owner. Principal residence includes a residence owned by a trust or estate of an individual, if the residence is occupied at least 51% of the year by a person who has an ownership interest in the residence as a beneficiary of the trust or estate.

(193) "Private interceptor main sewer" means a sewer serving 2 or more buildings and not part of the municipal sewer system.

(194) "Private onsite wastewater treatment system" has the meaning given under s. 145.01 (12), Stats.

(195) "Private water main" means a water main serving 2 or more buildings and not part of the municipal water system.

(195m) "Process piping" means that piping which is separated from a water supply system or drain system by the acceptable methods or means specified under ch. SPS 382 and is part of a system used exclusively for refining, manufacturing, industrial, or shipping purposes of every character and description.

(196) "Public" means, in the classification of plumbing fixtures, those fixtures which are available for use by the public or employees.

(197) "Public building" has the meaning specified under s. 101.01 (12), Stats.

Note: Section 101.01 (12), Stats., reads:

"Public building" means any structure, including exterior parts of such building, such as a porch, exterior platform or steps providing means of ingress or egress, used in whole or in part as a place of resort, assemblage, lodging, trade, traffic, occupancy, or use by the public or by 3 or more tenants. When used in relation to building codes, "public building" does not include a previously constructed building used as a community-based residential facility as defined in s. 50.01 (1g) which serves 20 or fewer unrelated residents or an adult family home, as defined in s. 50.01 (1).

(197m) "Public lavatory" means a lavatory located in a public restroom or located outside of a public restroom. Hand wash sinks required by Department of Agriculture, Trade and Consumer Protection (DATCP), Department of Health Services (DHS), National Institutes of Health (NIH), or United States Department of Agriculture (USDA) are considered public lavatory fixtures.

(198) "Public sewer" means a sewer owned and controlled by a public authority.

(199) “Public water main” means a water supply pipe for public use owned and controlled by a public authority.

(199m) “Push-fit fitting” means a mechanical fitting that joins pipes or tubes and achieves a seal by pushing the mating pipe or tube into the fitting.

(200) “Quick closing valve” means a valve or faucet that closes automatically when released manually or controlled by mechanical means for fast action closing.

(201) “Receptor” means a fixture or device that receives the discharge from indirect or local waste piping.

(202) “Redoximorphic feature” means a feature formed in the soil matrix by the processes of reduction, translocation and oxidation of iron and manganese compounds in seasonally saturated soil.

(203) “Reduced pressure detector fire protection backflow prevention assembly” means a type of reduced pressure principle type backflow preventer serving a fire protection system and which includes a parallel flow meter to indicate leakage or unauthorized use of water downstream of the assembly.

(203m) “Reduced pressure fire protection principle backflow preventer” means an assembly serving a fire protection system and consisting of 2 independently-acting check valves, internally force loaded to a normally closed position, and separated by an intermediate chamber or zone in which there is a hydraulically operated relief means of venting to atmosphere, internally forced loaded to a normally open position. The term “reduced pressure principle backflow preventer for fire protection systems” has the same meaning as reduced pressure fire protection principle backflow preventer.

(204) “Reduced pressure principle backflow preventer” means a cross connection control assembly consisting of 2 independently-acting check valves, internally force-loaded to a normally closed position and separated by an intermediate chamber or zone in which there is a hydraulically operated relief means for venting to atmosphere, internally force-loaded to a normally open position. These assemblies are designed to operate under continuous pressure conditions. The assembly shall include 2 properly located, tightly closing shut-off valves and properly located test cocks.

(205) “Relief vent” means a vent which permits additional circulation of air in or between drain and vent systems.

(206) “Riser” means a water supply pipe that extends vertically one full story or more.

(207) “Roof drain” means a drain installed to receive water collecting on the surface of a roof and to discharge it into a conductor.

(208) “Roughing in” means the installation of all parts of the plumbing system which can be completed prior to the installation of fixtures including drain, water supply and vent piping and the necessary fixture supports.

(209) “Rowhouse” means a building which is not more than 3 stories in height and which contains only 3 or more attached, vertically separated, side-by-side or back-to-back dwelling units, with each dwelling unit served by an individual exterior exit within 6 feet of the exit discharge grade.

(209m) “RV transfer tank” means a type of stationary container used to collect and hold wastewater discharges generated by an individual camping trailer or recreational vehicle.

(210) “Safing” means a membrane or material installed beneath a fixture to prevent leakage from escaping to the floor, ceiling or walls.

(211) “Sand interceptor” means a receptacle designed to intercept and retain sand, grit, earth and other similar solids.

(212) “Sanitary sewer” means a pipe that carries wastewater consisting in part of domestic wastewater.

(212e) “Scrub sink” means a plumbing fixture used for hand and arm washing prior to surgery or other medical procedures.

Note: A scrub sink may also be referred to as a surgeon washup sink.

(213) “Scum” means the accumulated floating solids generated during the biological, physical or chemical treatment, coagulation or sedimentation of wastewater.

(214) “Secretary” means the secretary of the department of safety and professional services or designee.

(214m) “Service sink” means a fixture designed to be used for building or facility maintenance.

Note: A service sink may also be referred to as a mop sink, mop basin or janitor’s sink.

(215) “Servicing” has the meaning as specified under s. NR 113.03 (57).

(216) “Sewage” means wastewater containing fecal coliform bacteria exceeding 200 CFU, colony forming units, per 100 ml.

(217) “Sewage grinder pump” means a type of sewage pump which macerates wastewater consisting in part of sewage.

(218) “Sewage pump” means an automatic pump for the removal of wastewater from a sanitary sump.

(218m) “Siphonic roof drain system” means a drainage system designed to receive water collecting on a roof surface via negative pressure conditions created by roof drains that allow water to enter the stormwater piping system while minimizing the ingress of air, generating a negative differential fluid pressure within the piping system thereby inducing full-bore flow without pipe gradient.

(219) “Slip-joint” means a connection in which one pipe slips into another, the joint of which is made tight with a compression type fitting.

(220) “Sludge” means the accumulated solids generated during the biological, physical or chemical treatment, coagulation or sedimentation of water or wastewater.

(221) “Small commercial establishment” means a commercial establishment or business place with a maximum daily wastewater flow rate of less than 5,000 gallons per day as determined from the design criteria of the state plumbing code. Small commercial establishment includes a farm, including a residence on a farm, if the residence is occupied by a person who is an operator of the farm and if the maximum daily wastewater flow rate of the farm and the residence on the farm is less than 5,000 gallons-per-day as determined from the design criteria of the state plumbing code.

(222) “Soil” means the naturally occurring pedogenically developed and undeveloped regolith overlying bedrock.

(223) “Soil consistence” means the resistance of soil material to deformation or rupture as related to the degree of adhesion and cohesion of a soil mass.

(224) “Soil horizon” means a layer of soil material approximately parallel to the land surface and differing from adjacent genetically related layers in physical, chemical, or biologic characteristics.

(225) “Soil morphology” means the physical or structural characteristics of a soil profile particularly as related to the arrangement of soil horizons based on color, texture, structure, consistence, and porosity.

(226) “Soil profile” means a vertical section of soil containing one or more soil horizons.

(227) “Soil profile evaluation” means a determination of soil properties or characteristics as they relate to wastewater or non-water-carried human waste treatment or dispersal.

(228) “Soil structure” means the combination or arrangement of individual soil particles into definable aggregates or peds, which are characterized and classified on the basis of size, shape, and degree of distinctness.

(229) “Soil texture” means the relative proportions of sand, silt and clay (soil separates) in a soil.

(229m) “Special wastewater” means any wastewater containing deleterious waste material as defined in s. SPS 382.34 (3) (b).

(230) “Spigot” means the end of a pipe which fits into a bell or hub.

(231) “Spill level” means the horizontal plane to which water will rise to overflow through channels or connections which are not directly connected to any drainage system, when water is flowing into a fixture, vessel or receptacle at the maximum rate of flow.

(231m) “Spill resistant vacuum breaker” means a cross connection control assembly consisting of one check valve force-loaded closed and an air inlet force loaded open to atmosphere located downstream of the check valve. The assembly also includes 2 tightly closing shut-off valves and 2 test cocks or a no. 1 test cock and a bleed valve.

(232) “Spring line, pipe” means the line or place from which the arch of a pipe or conduit rises.

Note: See ch. SPS 382 Appendix for an illustration depicting the spring line of a pipe.

(233) “Stack” means a drain or vent pipe that extends vertically one full story or more.

(234) “Stack vent” means a vent extending from the highest horizontal drain connected to a stack.

(235) “Standpipe” means a drain pipe serving as a receptor for the discharge wastes from indirect or local waste piping.

(236) “State” means the state of Wisconsin, its agencies and institutions.

(237) “State plumbing code” means chs. SPS 381 to 387.

(238) “Sterilizer, boiling type” means a device of nonpressure type, used for boiling instruments, utensils, or other equipment for disinfecting.

(239) “Sterilizer, instrument” means a device for the sterilization of various instruments.

(240) “Sterilizer, pressure” means a pressure vessel fixture designed to use steam under pressure for sterilizing.

Note: A pressure sterilizer is also referred to as an autoclave.

(241) “Sterilizer, pressure instrument washer” means a pressure vessel designed to both wash and sterilize instruments during the operating cycle of the device.

(242) “Sterilizer, utensil” means a device for the sterilization of utensils.

(243) “Sterilizer vent” means a separate pipe or stack, indirectly connected to the drain system at the lower terminal, which receives the vapors from nonpressure sterilizers, or the exhaust vapors from pressure sterilizers, and conducts the vapors directly to the outer air.

(244) “Sterilizer, water” means a device for sterilizing water and storing sterile water.

(245) “Storm sewer” means a pipe, other than a pipe located inside a building, that carries any of the following: storm water, groundwater or clear water.

(246) “Storm water” means wastewater from a precipitation event.

(247) “Subsoil drain” means that part of a drain system that conveys groundwater to a point of discharge or dispersal.

(248) “Sump” means a tank or pit that receives wastewater that must be emptied by mechanical means.

(249) “Sump pump” means an automatic device located in a sump, pit or low point that is designed to elevate storm water, groundwater or clear water.

(250) “Sump vent” means a vent pipe from a nonpressurized sump.

(251) “Supports” means hangers, anchors and other devices for supporting and securing pipes or fixtures to structural members of a building.

(252) “Surface water” means those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, all lakes, bays, rivers, streams, springs, ponds, impounding reservoirs, marshes, water courses, drainage systems, and other surface water, natural or artificial, public or private within the state or under its jurisdiction, except those waters which are entirely confined and completely retained upon the property of a facility.

(253) “Swimming pool” means a structure, basin, chamber or tank containing an artificial body of water for swimming, diving or recreational bathing.

(254) “Temperature and pressure relief valve” means a combination relief valve designed to function as both a temperature relief and pressure relief valve.

(255) “Temperature relief valve” means a temperature actuated valve designed to automatically discharge at a designated temperature.

(256) “Tempered water” means water ranging in temperature from 85°F. to less than 110°F.

(256e) “Ten-year, 24-hour storm” or “10-year, 24-hour storm” means a discrete rain storm event characterized by a specific duration, temporal distribution, rainfall intensity, return frequency and total depth of rainfall.

Note: The frequency, intensity, and duration of rainfall varies considerably during a storm by geographic location. Precipitation frequency atlases, NOAA Atlas 2, have been prepared by the National Oceanic and Atmospheric Administration (NOAA), National Weather Service. In chapter SPS 382, this value may be expressed as a specific “design storm”. The calculated volume of rainfall, or stormwater, may be determined from this value and used to calculate peak discharge.

(256m) “Thermal disinfection” means a method of providing bacterial control within a water distribution system using water that is heated and initially circulated to a minimum temperature of 140°F and with a minimum temperature of 124°F at the point of return to the heat source.

(257) “Total suspended solids” or “TSS” means solids in wastewater that can be removed readily by standard filtering procedures in a laboratory and reported as milligrams per liter (mg/L).

(259) “Trap” means a fitting, device or arrangement of piping so designed and constructed as to provide, when properly vented, a liquid seal which prevents emission of sewer gases without materially affecting the flow of wastewater through it.

(260) “Trap seal” means the vertical distance between the top of the trap weir and the top of the dip separating the inlet and outlet of the trap.

(260m) “Trap seal primer, drainage and electric types” means a device designed to supply water to a drain trap to provide and maintain its water seal by using a supply fixture drain line, an anti-siphon fill valve for water closet tanks, flushometer valve tail-piece, or an electric trap seal primer.

(261) “Trap seal primer, water supply fed” means a type of valve designed to supply water to the trap in order to provide and maintain the water seal of the trap.

(262) “Trap weir” means that part of a trap that forms a dam over which wastes must flow to enter the drain piping.

(263) “Turf sprinkler system” means a system of piping, appurtenances and devices installed underground to distribute water for lawn or other similar irrigation purposes.

(264) “Unsaturated soil” means soil in which the pore spaces contain water at less than atmospheric pressure, as well as air and other gases.

(265) “Vacuum” means any pressure less than that exerted by the atmosphere.

(265e) “Vacuum breaker tee” means an assembly of fittings designed to eliminate the possibility of back siphonage in a system by allowing air to enter through a tee fitting.

(266) “Vacuum relief valve” means a device that admits air into the water distribution system to prevent excessive vacuum in a water storage tank or heater.

(266m) “Vector control” means any method to limit or eradicate the mammals, birds, insects or other arthropods, collectively called “vectors,” which transmit disease pathogens.

(267) “Vent” means a part of the plumbing system used to equalize pressures and ventilate the system.

(268) “Vent header” means a branch vent which connects 2 or more stack vents or vent stacks or both and extends to the outside air.

(269) “Vent stack” means a vertical vent pipe that provides air for a drain stack of 5 or more branch intervals.

(270) “Vent system” means a pipe or pipes installed to provide a flow of air to or from a drain system, or to provide a circulation of air within the system to protect trap seals from siphonage and back pressure.

(271) “Vertical pipe” means any pipe or fitting which makes an angle of 45° or less with the vertical.

(272) “Wall hydrant, freeze resistant automatic draining type vacuum breaker” means a type of device which is designed and constructed with anti-siphon and back pressure preventive capabilities and with means for automatic post shut-off draining to prevent freezing.

(273) “Wall mounted water closet” means a water closet attached to a wall in such a way that it does not touch the floor.

(273e) “Washer sanitizer” means a plumbing appliance used for washing and disinfecting equipment.

(274) “Waste” means the discharge from any fixture, appliance, area or appurtenance.

(275) “Waste sink” means a receptor for the discharge from indirect or local waste piping installed with its flood level rim above the surrounding floor.

(276) “Wastewater” means clear water, storm water, domestic wastewater, industrial wastewater, sewage or any combination of these.

(277) “Wastewater, treated” means the effluent conveyed through one or more POWTS treatment components to a POWTS dispersal component.

(277e) “Wastewater treatment device” means a device or method that is intended to beneficially alter the characteristics of wastewater.

(278) “Water closet” means a water-flushed plumbing fixture designed to receive human excrement directly from the user of the fixture.

(279) “Water conditioner” means an appliance, appurtenance or device used for the purpose of ion exchange, demineralizing water or other methods of water treatment.

(280) “Water distribution system” means that portion of a water supply system from the outlet of the building control valve to the connection of a fixture supply connector, plumbing fixture, plumbing appliance, water-using equipment, or other piping systems to be served.

(281) “Water heater” means any heating device with piping connections to the water supply system that is intended to supply hot water for domestic or commercial purposes other than space heating.

(281m) “Water operator-in-charge” means the person designated by the owner of the building waterworks to be directly responsible for the day-to-day operations of the waterworks.

Note: Per s. NR 114.03(15), “waterworks” means a community water system owned by, or a private utility serving, a county, city, village, town, town sanitary district, utility district or a county-owned or state-owned public institution for congregate care or correction, which includes but is not limited to correctional institutions,

correctional camp systems, county jails or houses of correction, mental health institutes, schools for the handicapped, hospitals, infirmaries and asylums.

(282) “Water service” means that portion of a water supply system from the water main or private water supply up to and including the building control valve.

(283) “Waters of the state” has the meaning specified under s. 281.01 (18), Stats.

Note: Section 281.01 (18), Stats., reads:

“Waters of the state” means those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other surface water or groundwater, natural or artificial, public or private within the state or under its jurisdiction.

(284) “Water supply system” means the piping of a private water main, water service and water distribution system, fixture supply connectors, fittings, valves, and appurtenances through which water is conveyed to points of usage such as plumbing fixtures, plumbing appliances, water using equipment or other piping systems to be served.

(285) “Water treatment device” means a device which:

(a) Renders inactive or removes microbiological, particulate, inorganic, organic or radioactive contaminants from water which passes through the device or the water supply system downstream of the device; or

(b) Injects into the water supply system gaseous, liquid or solid additives other than water, to render inactive microbiological, particulate, inorganic, organic or radioactive contaminants.

(286) “Wetland” has the meaning given in s. 23.32 (1), Stats.

(287) “Wetland, constructed” means a man-made design complex of saturated substrates, emergent and submergent vegetation, and water that simulate natural wetlands for human use and benefits.

(288) “Wet vent” means that portion of a vent pipe that receives the discharge from other fixtures.

(288e) “Whirlpool” has the meaning as specified under s. SPS 390.03 (23) (j).

Note: Section SPS 390.03 (23) (j) reads:

“Whirlpool” means a relatively small public swimming pool that uses high temperature water (greater than 93°F) and that may include a water agitation system. A whirlpool may also be referred to as a spa.

Note: A fill and dump bathtub is not a whirlpool.

(288m) “Whirlpool bath tub” means a plumbing appliance consisting of a bathtub fixture that is equipped and fitted with a circulation piping system designed to accept, circulate and discharge bathtub water upon each use.

(288s) “Yard hydrant” means a device with a water supply outlet, or faucet, that has a valve control and outlet above ground and a connection to the water supply system below ground.

(289) “Yoke vent” means a vent connected to a drain stack for the purpose of preventing pressure changes in the drain stack.

History: Cr. Register, April, 2000, No. 532, eff. 7-1-00; cr. (7e), (17e), (60e), (67e), (67m), (82m), (90e), (163e), (170e), (199e), (209e), (209m), (252e), (288e) and (288m), am. (18), (20), (79), (80), (189), (203) and (204), r. and recr. (116), Register, December, 2000, No. 540, eff. 1-1-01; CR 01-139: am. (209) Register June 2002 No. 558, eff. 7-1-02; corrections in (152) and (154) made under s. 13.93 (2m) (b) 7., Stats., Register June 2002 No. 558; CR 02-002: am. (7e), (42), (44), (46), (56), (80), (84), (90e), (120), (134), (147), (178), (181), (193), (195), (210), (245), (246), (247), and (276), cr. (7m), (35m), (51m), (56e), (61m), (62m), (65m), (72e), (90m), (108m), (160m), (187e), (212e), (214m), (265e), (273e), and (277e), r. and recr. (249) Register April 2003 No. 568, eff. 5-1-03; CR 02-129: cr. (2m) and (168m) Register January 2004 No. 577, eff. 2-1-04; CR 04-035: cr. (59m), (59s), (62s), (70m), (129s), (133s), (136s), (171e), (186s) and (256e), am. (234) and (269) Register November 2004 No. 587, eff. 12-1-04; CR 07-100: cr. (163s) Register September 2008 No. 633, eff. 10-1-08; correction in (288e) made under s. 13.92 (4) (b) 7., Stats., Register September 2008 No. 633; CR 08-055: am. (5), (79), (115), (120), (147), (156), (189), (204), (234), (269) and (288), r. (20), (67e), (67m), (199e), (209e), (209m), (252e) and (258), cr. (80m), (82e), (108s), (203m) and (231m), r. and recr. (80), (151) to (154), (163) and (203) Register February 2009 No. 638, eff. 3-1-09; corrections in (286) and (288e) made under s. 13.92 (4) (b) 7., Stats., and corrections to numbering of (80m), (108s) and (203m) made under s. 13.92 (4) (b) 1., Stats., Register February 2009 No. 638; CR 10-064: r. and recr. (35), am. (116), (166), (166m) to be (160e), cr. (62e), (154m), (160m) Register December 2010 No. 660, eff. 1-1-11; correction in (intro.), (7e), (69), (88), (91), (170), (214), (237), (288e) made under s. 13.92 (4) (b) 6., 7., Stats., Register December 2011 No. 672; CR 11-031: r. (51), renum. (51m) to (51), cr. (209m) Register June 2013 No. 690, eff. 7-1-13; CR 13-062: renum. (141) to (141) (intro.) and am., cr. (141) (a) to (c) Register February 2014 No. 698, eff. 3-1-14; EmR1703: emerg. cr. (50g), (50r), eff. 2-6-17; CR

17-017: cr. (50g), (50r) Register March 2018 No. 747, eff. 4-1-18; CR 17-065: cr. (13m), am. (92), cr. (93m), (183m), am. (194) Register June 2018 No. 750, eff. 7-1-18; correction in numbering (183m) under s. 13.92 (4) (b) 1., Stats., Register June 2018 No. 750; CR 23-006: cr. (2r), (4m), am. (17e), (18), cr. (22m), (30m), am. (35m), (39), (44), cr. (50c), (50e), renum. (50g) to (50t), cr. (50h), (50L), am. (65m), (66), cr. (66m), (73e), (73m), (73s), am. (79), (108s), (116), (117), cr. (117m), (129m), (138m), r. (150), cr. (153e), (153m), (153s), (154g), renum. (172) to (13e) and am., am. (189), cr. (195m), (197m), (199m), am. (204), cr. (218m), (229m), am. (231m), cr. (256m), (260m), (266m), am. (280), cr. (281m), am. (282), cr. (288s) Register September 2023 No. 813, eff. 10-1-23; renum. (50t) to (50m) under s. 13.92 (4) (b) 1., Stats., and correction in (18), (50m), (108s), (116), (117), (189), (204), (231m) made under 35.17, Stats., Register September 2023 No. 813.

SPS 381.20 Incorporation of standards by reference. (1) CONSENT. (a) Pursuant to s. 227.21 (2), Stats., the attorney general has consented to the incorporation by reference of the standards listed in sub. (3).

(b) The codes and standards that are referenced in this chapter, and any additional codes and standards that are subsequently referenced in those codes and standards, shall apply to the prescribed extent of each such reference, except as modified by this chapter.

Note: Copies of the adopted standards are on file in the offices of the department and the legislative reference bureau. Copies of the standards may be purchased through the respective organizations listed in Tables 381.20-1 to 381.20-13.

(2) ALTERNATE STANDARDS. (a) Alternate standards that are equivalent to or more stringent than the standards referenced in chs. SPS 381 to 387 may be used in lieu of the referenced standards when approved by the department or if written approval is issued by the department in accordance with par. (b).

1. Upon receipt of a fee and a written request, the department may issue an approval for the use of the alternate standard.

2. The department shall review and make a determination on an application for approval within 40 business days of receipt of all forms, fees and documents required to complete the review.

Note: Review fees for standards under this paragraph are listed in ch. SPS 302.

(b) Determination of approval shall be based on an analysis of the alternate standard and the standard referenced in chs. SPS 381 to 387, prepared by a qualified independent third party or the organization that published the standard contained in chs. SPS 381 to 387.

(c) The department may include specific conditions in issuing an approval, including an expiration date for the approval. Violations of the conditions under which an approval is issued shall constitute a violation of chs. SPS 381 to 387.

(d) If the department determines that the alternate standard is not equivalent to or more stringent than the referenced standard, the request for approval shall be denied in writing.

(e) The department may revoke an approval for any false statements or misrepresentations of facts on which the approval was based.

(f) The department may reexamine an approved alternate standard and issue a revised approval at any time.

(3) ADOPTION OF STANDARDS. The standards referenced in Tables 381.20-1 to 381.20-13 are incorporated by reference into chs. SPS 381 to 387.

Note: The tables in this section provide a comprehensive listing of all of the standards adopted by reference in chs. SPS 381 to 387. For requirements or limitations in how these standards are to be applied, refer to the code section that requires compliance with the standard.

(4) DEPARTMENT AUTHORITY. A department interpretation of an adopted standard under this chapter shall supersede any differing interpretation by either a lower level jurisdiction or an issuer of the adopted standard.

Table 381.20-1

Standard Reference Number	Title
AHAM	Association of Home Appliance Manufacturers 1111 19th Street, NW Suite 402 Washington, DC 20036 Phone: 202-872-5955 Web page: www.aham.org
DW-2-2020	Household Electric Dishwashers

Table 381.20-3e

Standard Reference Number	Title
ASME	American Society of Mechanical Engineers Two Park Avenue New York, New York 10016-5990 Phone: 800-843-2763 Website: www.asme.org
1. A112.1.2-2012 (R2017)	Air Gaps in Plumbing Systems (For Plumbing Fixtures and Water-Connected Receptors)
2. A112.1.3-2000 (R2015)	Air-gap Fittings for Use with Plumbing Fixtures, Appliances, and Appurtenances
3. A112.3.1-2007 (R2017)	Stainless Steel Drainage Systems for Sanitary DWV, Storm and Vacuum Applications Above and Below Ground
4. A112.3.4-2018/CSA B45.9-18	Macerating Toilet Systems and Waste Pumping Systems for Plumbing Fixtures
5. A112.4.1-2009 (R2019)	Water Heater Relief Valve Drain Tubes
6. A112.4.2-2015/CSA B45.16-15 (R2020)	Personal Hygiene Devices for Water Closets
7. A112.6.1M-97 (R2017)	Supports for Off-the-Floor Plumbing Fixtures for Public Use
8. A112.6.2-2017	Framing-Affixed Supports (Carriers) for Off-the-Floor Plumbing Fixtures
9. A112.6.3-2019	Floor and Trench Drains
10. A112.6.4-2003 (R2012)	Roof, Deck and Balcony Drains

11.	A112.6.9–2005 (R2015)	Siphonic Roof Drains
12.	A112.14.1–2003 (R2017)	Backwater Valves
13.	A112.14.3–2018	Hydromechanical Grease Interceptors
14.	A112.14.4–2001 (R2012)	Grease Removal Devices
15.	A112.14.6–2010	FOG (Fats, Oils and Greases) Disposal Systems
16.	A112.18.1–2018 / CSA B125.1–18	Plumbing Supply Fittings
17.	A112.18.3–2002 (R2017)	Performance Requirements for Backflow Protection Devices and Systems in Plumbing Fixture Fittings
18.	A112.18.6–2017 / CSA B125.6–17	Flexible Water Connectors
19.	A112.19.1–2018 / CSA B45.2–18	Enameled Cast Iron and Enameled Steel Plumbing Fixtures
20.	A112.19.2–2018 / CSA B45.1–18	Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals
21.	A112.19.3–2017 / CSA B45.4–17	Stainless Steel Plumbing Fixtures (Designed for Residential Use)
22.	A112.19.4M–1994 (R2009)	Porcelain Enameled Formed Steel Plumbing Fixtures
23.	A112.19.5–2017 / CSA B45.15–17	Flush Valves and Spuds for Water–Closets, Urinals, and Tanks
24.	B1.20.1–2013 (R2018)	Pipe Threads, General Purpose, (Inch)
25.	B16.1–2020	Gray Iron Pipe Flanges and Flanged Fittings (Classes 25, 125, and 250)
26.	B16.3–2016	Malleable Iron Threaded Fittings (Classes 150 and 300)
27.	B16.4–2016	Gray Iron Threaded Fitting (Classes 125 and 250)
28.	B16.5–2020	Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard
29.	B16.9–2018	Factory–Made Wrought Butt Welding Fittings
30.	B16.11–2016	Forged Fittings, Socket–Welding and Threaded
31.	B16.12–2019	Cast Iron Threaded Drainage Fittings
32.	B16.15–2018	Cast Bronze Threaded Fittings (Classes 125 and 250)
33.	B16.18–2018	Cast Copper Alloy Solder Joint Pressure Fittings
34.	B16.22–2018	Wrought Copper and Copper Alloy Solder–Joint Pressure Fittings
35.	B16.23–2016	Cast Copper Alloy Solder Joint Drainage Fittings: DWV
36.	B16.24–2016	Cast Copper Alloy Pipe Flanges, Flanged Fittings, and Valves: Classes 150, 300, 600, 900, 1500, and 2500
37.	B16.26–2018	Cast Copper Alloy Fittings for Flared Copper Tubes
38.	B16.29–2017	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings – DWV
39.	B16.42–2016	Ductile Iron Pipe Flanges and Flanged Fittings, (Classes 150 and 300)
40.	B16.45–1998 (R2006)	Cast Iron Fittings for Solvent® Drainage Systems
41.	B36.19M–2018	Stainless Steel Pipe

Table 381.20–3p

ASPE	American Society of Plumbing Engineers (ASPE) 6400 Shafer Ct, Ste 350, Rosemont, Illinois 60018–4914 Phone: (847) 296–0002 Website: www.aspe.org
Standard Reference Number	Title
1. 45–2018	Siphonic Roof Drainage

Table 381.20-4

ASSE/IAPMO		American Society of Sanitary Engineering 18927 Hickory Creek Drive, Suite 220 Mokena, Illinois 60448 Phone: 708-995-3019 Website: www.asse-plumbing.org
Standard Reference Number	Title	
1.	1001-2021	Atmospheric Type Vacuum Breakers
2.	ASSE 1002-2020/ASME A112.1002-2020/CSA B125.12.20	Anti-siphon Fill Valves for Water Closet Tanks
3.	1003-2020 e1	Water Pressure Reducing Valves for Potable Water Distribution Systems
4.	1004-2017	Commercial Dishwashing Machines
5.	1006-1989	Residential Use (Household) Dishwashers
6.	1007-1992	Home Laundry Equipment
7.	1008-2020	Plumbing Aspects of Residential Food Waste Disposer Units
8.	1009-1990	Commercial Food Waste Grinder Units
9.	1010-2004	Water Hammer Arresters
10.	1011-2017	Hose Connection Vacuum Breakers
11.	1012-2021	Backflow Preventer with Intermediate Atmospheric Vent
12.	1013-2021	Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers
13.	1014-2020	Backflow Prevention Devices for Hand-Held Showers
14.	1015-2021	Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies
15.	ASSE 1016-2017/ASME A112.1016-2017/CSA B125.16-17	Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations
16.	1017-2009	Temperature Actuated Mixing Valves for Hot Water Distribution Systems
17.	1018-2001 (R2021)	Trap Seal Primer Valves – Potable Water Supplied
18.	1019-2011 (R2016)	Wall Hydrant with Backflow Protection and Freeze Resistance
19.	1020-2020 e1	Pressure Vacuum Breaker Assembly
20.	1022-2021	Backflow Preventer for Beverage Dispensing Equipment
21.	1023-2020	Hot Water Dispensers, Household Storage Type, Electrical
22.	1024-2017 (R2021)	Dual Check Backflow Preventers
23.	1032-2004 (R2021)	Dual Check Valve Type Backflow Preventers for Carbonated Beverage Dispensers, Post-Mix Type
24.	1035-2020	Laboratory Faucet Backflow Preventers
25.	1037-2015/ASME A112.1037-2015/CSA B125.37-15 (R2020)	Pressurized Flushing Devices for Plumbing Fixtures
26.	1044-2015	Trap Seal Primer – Drainage Types and Electric Design Types
27.	1047-2021	Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies, Performance Requirements for
28.	1048-2021	Double Check Detector Fire Protection Backflow Prevention Assemblies, Performance Requirements for
29.	1050-2021	Stack Air Admittance Valves for Sanitary Drainage Systems
30.	1051-2021	Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems
31.	1052-2016	Hose Connection Backflow Preventers, Performance Requirements for
32.	1053-2019	Dual Check Backflow Preventer Wall Hydrants – Freeze Resistant Type, Performance Requirements for
33.	ANSI/CAN/ASSE/ IAPMO 1055-2020	Chemical Dispensing Systems with Integral Backflow Protection, Performance Requirements for
34.	1056-2013 (R2021)	Spill Resistant Vacuum Breaker Assemblies, Performance Requirements for
35.	1057-2012	Freeze Resistant Sanitary Yard Hydrants with Backflow Protection, Performance Requirements for
36.	1061-2020	Performance Requirements for Push-Fit Fittings
37.	1066-1997	Individual Pressure Balancing In-Line Valves for Individual Fixture Fittings
38.	1072-2020	Performance Requirements for Barrier Type Trap Seal Protection for Floor Drains

39.	1079–2012 (R2021)	Performance Requirements for Dielectric Pipe Unions
40.	1081–2014 (R2020)	Performance Requirements for Backflow Preventers with Integral Pressure Reducing Boiler Feed Valve and Intermediate Atmospheric Vent Style for Domestic and Light Commercial Water Distribution Systems
41.	ASSE/IAPMO/ANSI SERIES 5000–2022e1	Cross Connection Control Professional Qualifications
42.	IAPMO/ANSI Z1001–2016	(Prefabricated Gravity Grease Interceptors)

Table 381.20–5

ASTM		ASTM International 100 Barr Harbor Drive West Conshohocken, Pennsylvania 19428–2959 Phone: (610) 832–9500 Website: www.astm.org
Standard Reference Number	Title	
1.	A53/A53M–20	Pipe, Steel, Black and Hot–Dipped, Zinc–Coated Welded and Seamless, Specification for
2.	A74–21	Cast Iron Soil Pipe and Fittings, Specification for
3.	A123/A123M–17	Zinc (Hot–Dip Galvanized) Coatings on Iron and Steel Products, Standard Specification for
4.	A269/A269M Rev. A–15 (R2019)	Seamless and Welded Austenitic Stainless–Steel Tubing for General Service
5.	A270/A270M–15 (R2019)	Seamless and Welded Austenitic and Ferritic/Austenitic Stainless Steel Sanitary Tubing, Standard Specification for
6.	A312/A312M–2019	Seamless, Welded and Heavily Cold Worked Austenitic Stainless–Steel Pipes
7.	A358/A358M–2019	Electro–Fusion–Welded Austenitic Chromium–Nickel Stainless Steel Pipe for High–Temperature Service and General Applications
8.	A403/A403M–20	Wrought Austenitic Stainless Steel Piping Fittings, Standard Specification for
9.	A450/A450M–18a	Carbon, Ferritic Alloy, and Austenitic Alloy Steel Tubes
10.	A554–21	Welded Stainless Steel Mechanical Tubing
11.	A774/A774M–14 (R2019)	Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures
12.	A778/A778M–2016 (R2021)	Welded, Unannealed Austenitic Stainless Steel Tubular Products
13.	A888–21	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Pipe Applications, Specifications for
14.	B32–20	Solder Metal,
15.	B42–20	Seamless Copper Pipe, Standard Sizes
16.	B43–20	Seamless Red Brass Pipe, Standard Sizes, Specification for
17.	B75/B75M–20	Standard Specification for Seamless Copper Tube
18.	B88–20	Seamless Copper Water Tube, Standard Specification for
19.	B88M–20	Seamless Copper Water Tube (Metric), Standard Specification for
20.	B135/B135M–17	Standard Specification for Seamless Brass Tube
21.	B152/B152M–19	Copper Sheet, Strip, Plate, and Rolled Bar, Standard Specification for
22.	B251/B251M–17	Wrought Seamless Copper and Copper–Alloy Tube, Standard Specification for
23.	B302–17	Threadless Copper Pipe, Standard Sizes, Standard Specification for
24.	B306–20	Copper Drainage Tube (DWV), Standard Specification for
25.	B447–12a (R2021)	Standard Specification for Welded Copper Tube
26.	B828–16	Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings, Standard Practice for
27.	C4–04 (R2018)	Clay Drain Tile and Perforated Clay Drain Tile
28.	C14–20	Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe, Specification for
29.	C14M–20	Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe (Metric), Specification for
30.	C33/C33M–18	Concrete Aggregates, Specification for
31.	C76–20	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, Specification for

32.	C76M-20	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, (Metric) Specifications for
33.	C425-04 (R2018)	Compression Joints for Vitrified Clay Pipe and Fittings, Standard Specification for
34.	C443-20	Joints for Circular Concrete Pipe and Manholes, Using Rubber Gaskets, Standard Specification for
35.	C443M-20	Joints for Circular Concrete Pipe and Manholes, Using Rubber Gaskets (Metric), Standard Specification for
36.	C507-20	Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe, Standard Specification for
37.	C507M-20	Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe (Metric)
38.	C564-20a	Rubber Gaskets for Cast Iron Soil Pipe and Fittings, Standard Specification for
39.	C700-18	Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated, Standard Specification for
40.	C877-21	External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections, Standard Specifications for
41.	C877M-21	External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections, (Metric)
42.	C887-20	Standard Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar
43.	C923/C923M-20	Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals, Standard Specification for
44.	C990-09 (R2019)	Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants, Standard Specification for
45.	C990M-09 (R2019)	Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants (Metric)
46.	C1227-20	Precast Concrete Septic Tanks
47.	C1306/C1306M-08 (R2016)	Hydrostatic Pressure Resistance of a Liquid-Applied Waterproofing Membrane, Standard Test Method for
48.	C1478-20	Standard Specification for Storm Drain Resilient Connectors Between Reinforced Concrete Storm Sewer Structures, Pipes and Laterals
49.	C1613-17	Precast Concrete Grease Interceptor Tanks
50.	C1628-19	Standard Specification for Joints for Concrete Gravity Flow Sewer Pipe Using Rubber Gaskets
51.	C1644-06 (R2017)	Standard Specification for Resilient Connectors Between Reinforced Concrete On-Site Wastewater Tanks and Pipes
52.	C1745/C1745M-18	Standard Test Method for Measurement of Hydraulic Characteristics of Hydrodynamic Stormwater Separators and Underground Settling Devices
53.	D1785-15	Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120, Standard Specification for
54.	D2235-04 (R2016)	Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings, Standard Specification for
55.	D2239-12a (R2020)	Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter, Standard Specification for
56.	D2241-20	Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR-Series), Standard Specification for
57.	D2321-20	Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications, Standard Practice for
58.	D2464-15	Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80, Standard Specification for
59.	D2466-17	Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40, Standard Specification for
60.	D2467-20	Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80, Standard Specification for
61.	D2564-20	Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Systems, Standard Specification for
62.	D2609-15	Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe, Standard Specification for
63.	D2657-07 (R2015)	Heat Fusion Joining of Polyolefin Pipe and Fittings, Standard Practice of

64.	D2661-14	Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings, Standard Specification for
65.	D2665-20	Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings, Standard Specification for
66.	D2680-20	Acrylonitrile-Butadiene-Styrene (ABS) and Poly (Vinyl Chloride) (PVC) Composite Sewer Piping, Specification for
67.	D2683-20	Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing, Standard Specification for
68.	D2729-17	Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, Standard Specification for
69.	D2737-12a (R2020)	Polyethylene (PE) Plastic Tubing, Standard Specification for
70.	D2774-21	Underground Installation of Thermoplastic Pressure Piping, Standard Practice for
71.	D2846/D2846M-19a	Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems, Standard Specification for
72.	D2852-16	Styrene-Rubber (SR) Plastic Drain Pipe and Fittings, Standard Specification for
73.	D2855-20	Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings, Standard Practice for
74.	D3034-16	Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, Standard Specification for
75.	D3035-15	Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter, Standard Specification for
76.	D3138-04 (R2016)	Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly (Vinyl Chloride) (PVC) Non-Pressure Piping Components, Standard Specification for
77.	D3212-20	Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals, Standard Specification for
78.	D3261-16	Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing, Standard Specification for
79.	D3311-17	Drain, Waste, and Vent (DWV) Plastic Fittings Patterns, Standard Specification for
80.	D4068-17	Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane
81.	D4491/D4491M-20	Water Permeability of Geotextile by Permittivity, Standard Specification for
82.	D4533/D4533M-15	Trapezoid Tearing Strength of Geotextiles, Standard Test Method for
83.	D4632/D4632M-15a	Grab Breaking Load and Elongation of Geotextiles, Standard Test Method for
84.	D4751-20b	Determining Apparent Opening Size of a Geotextile, Standard Test Method for
85.	D4833/D4833M-07 (R2020)	Index Puncture Resistance of Geomembranes, and Related Products, Standard Test Method for
86.	F402-18	Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings, Standard Practice for
87.	F409-17	Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings, Standard Specification for
88.	F437-15	Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80, Standard Specification for
89.	F438-17	Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40, Standard Specification for
90.	F439-19	Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80, Standard Specification for
91.	F441/F441M-20	Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80, Standard Specification for
92.	F442/F442M-20	Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR), Standard Specification for
93.	F477-14	Elastomeric Seals (Gaskets) for Joining Plastic Pipe, Standard Specification for
94.	F481-97 (R2019)	Standard Practice for Installation of Thermoplastic Pipe and Corrugated Pipe in Septic Tank Leach Fields
95.	F493-20	Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings, Standard Specification for
96.	F585-16 (R2021)	Standard Guide for Insertion of Flexible PE Pipe into Existing Sewers

97.	F628-12	Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core, Standard Specification for
98.	F656-15	Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings, Standard Specification for
99.	F667/F667M-16	3 through 24 in. Corrugated Polyethylene Pipe and Fittings, Standard Specification for
100.	F679-16	Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings, Standard Specification for
101.	F714-21a	Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
102.	F794-03 (R2014)	Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter, Standard Specification for
103.	F810-12 (R2018)	Smoothwall Polyethylene (PE) Pipe for Use in Drainage and Waste Disposal Absorption Fields, Standard Specification for
104.	F876-20b	Crosslinked Polyethylene (PEX) Tubing, Standard Specification for
105.	F877-20	Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems, Standard Specification for
106.	F891-16	Coextruded Poly (Vinyl Chloride) (PVC) Plastic Pipe With a Cellular Core, Standard Specification for
107.	F894-19	PE Large Diameter Profile Wall Sewer and Drain Pipe
108.	F949-20	Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings, Standard Specification for
109.	F1055-16a	Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and PEX Pipe and Tubing
110.	F1281-17	Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe, Standard Specification for
111.	F1282-17	Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe, Standard Specification for
112.	F1336-20	Poly (Vinyl Chloride) (PVC) Gasketed Sewer Fittings, Specification for
113.	F1412-16	Standard Specification for Polyolefin Pipe and Fittings for Corrosive Waste Drainage Systems
114.	F1673-10 (R2016)	Standard Specification for Polyvinylidene Fluoride (PVDF) Waste Drainage Systems
115.	F1732-12 (R2018)	Standard Specification for PVC Sewer and Drain Pipe Containing Recycled PVC Material Standard Specification for PVC Sewer and Drain Pipe Containing Recycled PVC Material
116.	F1760-16 (R2020)	Standard Specification for Coextruded PVC Non-Pressure Plastic Pipe Having Reprocessed-Recycled Content
117.	F1807-19b	Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing, Standard Specification for
118.	F1866-18	Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings, Specifications for
119.	F1901-16	Standard Specification for PE Pipe and Fittings for Roof Drain Systems
120.	F1960-21	Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing
121.	F1962-20	Standard Guide for Use of Maxim-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings
122.	F1970-19	Standard Specification for Special Engineered Fittings, Appurtenances or Valves for use in Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Systems
123.	F1974-09 (R2020)	Standard Specification for Metal Insert Fittings for PE-AL-PE and Cross-linked PEX-AL-PEX Composite Pressure Pipe
124.	F2021-17	Design & Installation of Plastic Siphonic Roof Drain Systems
125.	F2080-19	Standard Specification for Cold-Expansion Fittings with Metal Compression-Sleeves for Crosslinked Polyethylene (PEX) Pipe and SDR9 Polyethylene of Raised Temperature (PE-RT) Pipe
126.	F2098-18	Standard Specification for Stainless Steel Clamps for Securing SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) to Metal Insert and Plastic Insert Fittings

127.	F2159–21	Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring, or Alternate Stainless Steel Clamps for SDR9 Crosslinked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE–RT) Tubing
128.	F2165–19	Standard Specification for Flexible Pre–Insulated Plastic Piping
129.	F2389–21	Standard Specification for Pressure Rated Polypropylene (PP) Piping Systems
130.	F2390–21	Standard Specification for PVC Plastic Drain, Waste and Vent (DWV) Pipe and Fittings Having Post–Industrial Recycle Content
131.	F2418–19	Standard Specification for Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers
132.	F2434–19	Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 PEX and SDR9 PEX–AL–PEX Tubing
133.	F2510/2510M–17	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Corrugated Dual– and Triple–Wall PE and PP Pipes
134.	F2618–21	Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Fittings for Chemical Waste Drainage Systems
135.	F2620–20	Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
136.	F2649–14 (R2019)	Standard Specification for Corrugated HDPE Grease Interceptor Tanks
137.	F2735–21	Standard Specification for Plastic Insert Fittings for SDR9 PEX and PE–RT Tubing
138.	F2737–11 (R2021)	Standard Specification for Corrugated HDPE Water Quality Units
139.	F2763/F2763M–16 (R2021)	Standard Specification for 12 to 60 in. Dual– and Triple Profile Wall PE Pipe and Fittings for Sanitary Sewer Applications
140.	F2764/F2764M–19	Standard Specification for 6 to 60 in. PP Corrugated Double– and Triple Wall Pipe and Fittings for Non–Pressure Sanitary Sewer Applications
141.	F2769–18	Standard Specification for Polyethylene of Raised Temperature (PE_RT) Plastic Hot and Cold–Water Tubing and Distribution Systems
142.	F2787–13 (R2018)	Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers)
143.	F2829/F2829M–21	Standard Specification for Metric– and Inch–Sized Fittings for PEX Pipe
144.	F2854–21	Standard Specification for Push–Fit PEX Mechanical Fittings for PEX Tubing
145.	F2855–19	Standard Specification for CPVC–AL–CPVC Composite Pressure Tubing
146.	F2881/2881M–21	Standard Specification for 12 to 60 in. PP Dual Wall Pipe and Fittings for Non–Pressure Storm Sewer Applications
147.	F2922–13 (R2018)	Standard Specification for Polyethylene (PE) Corrugated Stormwater Collection Chambers
148.	F3190–21	Standard Practice for Heat Fusion Equipment (HFE) Operator Qualification on PE and Polyamide Pipe and Fittings
149.	F3328–18	Standard Practice for the One–Step (Solvent Cement Only) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets
150.	F3346–19	Standard Specification for PE–RT–AL–PE–RT Composite Pressure Pipe
151.	F3347–20a	Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross–linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE–RT) Tubing
152.	F3348–21	Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross–linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE–RT) Tubing

Table 381.20-6

AWS	American Welding Society 8669 NW 36 Street, #130 Miami, Florida 33166–6672 Phone: 800–443–9353 Website: www.aws.org
Standard Reference Number	Title
1. AWS A5.8M/A5.8:2019	Filler Metals for Brazing and Braze Welding, Specification for

Table 381.20-7

AWW		American Water Works Association (AWWA) 6666 West Quincy Avenue Denver, Colorado 80235 Phone: 303-794-7711 or 800-926-7337 Website: www.awwa.org
Standard Reference Number	Title	
1.	ANSI/AWWA C110/A21.10-12	American National Standard for Ductile-Iron and Gray-Iron Fittings
2.	ANSI/AWWA C111/A21.11-17	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
3.	ANSI/AWWA C115/A21.15-20	American National Standard for Flanged Ductile-Iron Pipe with Ductile-Type Iron or Gray-Iron Pipe Threaded Flanges
4.	ANSI/AWWA C151/A21.51-17	Ductile-Iron Pipe, Centrifugally Cast, for Water
5.	ANSI/AWWA C153/A21.53-19	American National Standard for Ductile-Iron Compact Fittings, 3 in. through 16 in., for Water and Other Liquids
6.	ANSI/AWWA C220-17	Stainless-Steel Pipe, 1/2 in. (13mm) and Larger
7.	ANSI/AWWA C651-14	Water Mains, Disinfecting
8.	ANSI/AWWA C700-20	Cold-Water Meters — Displacement Type with Bronze Metal Main Case (w/ 1991 Addendum)
9.	ANSI/AWWA C701-15	Cold-Water Meters — Turbine Type, for Customer Service
10.	ANSI/AWWA C702-19	Cold-Water Meters — Compound Type
11.	ANSI/AWWA C704-19	Cold-Water Meters — Propeller Type for Main Line Applications
12.	ANSI/AWWA C707-10 (R2016)	Cold-Water Meters, Encoder-Type, Remote-Registration Systems
13.	ANSI/AWWA C708-19	Cold-Water Meters — Multi-Jet Type
14.	ANSI/AWWA C710-20	Cold-Water Meters, Displacement Type — Plastic Main
15.	ANSI/AWWA C900-16	Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings 4-inch to 12-inch (100mm Through 300 mm) for Water Transmission and Distribution
16.	ANSI/AWWA C901-20	Polyethylene (PE) Pressure Pipe and Tubing, 1/2 in. (13mm) Through 3 in. (76mm) for Water Service
17.	ANSI/AWWA C904-16	Cross-Linked PEX Pressure Tubing 1/2-3 in. for Water Service
18.	ANSI/AWWA C906-15	Polyethylene Pressure Pipe and Fittings, 4 in. through 63 in., for Water Distribution

Table 381.20-7e

CSA		Canadian Standards Association 178 Rexdale Boulevard Toronto, Ontario, Canada M9W 1R3 Phone: 800-463-6727 Website: www.csagroup.org
Standard Reference Number	Title	
1.	4.1:19/Z21.10.1:19	Gas water heaters, volume I, storage water heaters with input ratings of 75,000 Btu per hour or less
2.	4.3:19/Z21.10.3:19	Gas-fired water heaters, volume III, storage water heaters with input ratings above 75,000 Btu per hour, circulating and instantaneous
3.	4.4-2015 (R2020) / ANSI Z21.22-2015 (R2020)	Relief Valves for Hot Water Supply Systems
4.	B45.5-17/IAPMO Z124-2017	Plastic Plumbing Fixtures
5.	B45.13:19/IAPMO Z1700-2019	Vacuum Waste Collection Systems
6.	B64 SERIES-11 (R2016)	Backflow preventers and vacuum breakers
7.	B66-16	Design, Material and Manufacturing Requirements for Prefabricated Septic Tanks and Sewage Holding Tanks
8.	B125.3-18	Plumbing Fittings
9.	B137:20	Thermoplastic Pressure Piping Standards Package – Consists of All the CSA B137:20 Standards
10.	B481 Series 12 (R2017)	Grease Interceptors
11.	B1800:21	Thermoplastic Non-pressure Piping Compendium (Numbers 17 and 18 are superseded by CSA B1800.)

Table 381.20-8

CISPI	Cast Iron Soil Pipe Institute 2401 Fieldcrest Dr. Mundelein, Illinois 60060 Phone: 212-864-2910 Website: www.cispi.org	
	Standard Reference Number	Title
1.	301-18	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Standard Specification for
2.	310-20	Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Specification for

Table 381.20-9

FMRC	FM Global (FMRC) 270 Central Avenue Johnston, Rhode Island 02919-4949 Phone: 401-275-3000 Website: www.fmglobal.com	
	Standard Reference Number	Title
1.	1680-89	Couplings Used in Hubless Cast Iron Systems for Drain, Waste or Vent, Sewer, Rainwater or Storm Drain Systems Above and Below Ground, Industrial/Commercial and Residential, January 1989

Table 381.20-10

NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, Massachusetts 02169-7471 Phone: 800-344-3555 Website: www.nfpa.org	
	Standard Reference Number	Title
1.	NFPA 13D-2019	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, Standard for the
2.	NFPA 24-2019	Installation of Private Fire Service Mains and Their Appurtenances, Standard for the

Table 381.20-11

NSF	NSF International (NSF) 789 N. Dixboro Road P.O. Box 130140 Ann Arbor, Michigan 48105 Phone: (800) 673-6275 Website: www.nsf.org	
	Standard Reference Number	Title
1.	NSF/ANSI 3-2019	Commercial Warewashing Equipment
2.	NSF/ANSI 12-2018	Automatic Ice Making Equipment
3.	P157-2000	Electrical Incinerating Toilets – Health and Sanitization
4.	NSF/ANSI 14-2020	Plastic Piping System Components and Related Materials
5.	NSF/ANSI 40-2019	Residential Wastewater Treatment Systems
6.	NSF/ANSI 41-2018	Non-liquid Saturated Treatment Systems
7.	NSF/ANSI 42-2020	Drinking Water Treatment Units – Aesthetic Effects
8.	NSF/ANSI 44-2018	Residential Cation Exchange Water Softeners
9.	NSF/ANSI 46-2021	Evaluation of Components and Devices Used in Wastewater Treatment Systems
10.	NSF/ANSI/CAN 50-2019	Equipment and Chemicals for Swimming Pools, Spas, Hot Tubs, and Other Recreational Water Facilities
11.	NSF/ANSI 51-2019	Food Equipment Materials
12.	NSF/ANSI 53-2020	Drinking Water Treatment Units – Health Effects
13.	NSF/ANSI 55-2019	Ultraviolet Microbiological Water Treatment Systems
14.	NSF/ANSI 58-2020	Reverse Osmosis Drinking Water Systems

15.	NSF/ANSI/CAN 60-2020	Drinking Water Treatment Chemicals – Health Effects
16.	NSF/ANSI/CAN 61-2020	Drinking Water System Components — Health Effects
17.	NSF/ANSI 62-2020	Drinking Water Distillation Systems
18.	NSF/ANSI 184-2019	Residential Dishwashers
19.	NSF/ANSI 240-2017	Drainfield Trench Product Sizing for Gravity Dispersal Onsite Wastewater Treatment and Dispersal Systems
20.	NSF/ANSI 245-2019	Residential Wastewater Treatment Systems – Nitrogen Reduction
21.	NSF/ANSI 350-2020	Onsite Residential and Commercial Water Reuse Treatment Systems
22.	NSF/ANSI 350-1-2017	Onsite Residential and Commercial Greywater Treatment Systems for Subsurface Discharge
23.	NSF/ANSI 359-2018	Valves for PEX Water Distribution Tubing Systems
24.	NSF/ANSI 372-2020	Drinking Water System Components — Lead Content

Table 381.20-11m

PDI	The Plumbing and Drainage Institute (PDI) 800 Turnpike Street, Suite 300 North Andover, Massachusetts 01845 USA 800-589-8956 Website: www.pdionline.org
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Standard Reference Number	Title
1. PDI-G 101 (R2017)	Testing and Rating Procedure for Hydro Mechanical Grease Interceptors with Appendix of Installation and Maintenance
2. PDI-G 102 (2009)	Testing and Certification for Grease Interceptors with FOG Sensing and Alarm Devices

Table 381.20-12

STI/SPFA	Steel Tank Institute/Steel Plate Fabricators Association 944 Donata Court Lake Zurich, Illinois 60047 Phone: 847-438-8265 Website: www.steeltank.com
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Standard Reference Number	Title
STI-P STI/SPFA STI-P3-2018	External Corrosion Protection of Underground Steel Storage Tanks, Specifications and Manual for

Table 381.20-13

UL		Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, Illinois 60062 Phone: 847-272-8800 Website: www.ul.com
Standard Reference Number	Title	
1. Standard 58-2018	Steel Underground Tanks for Flammable and Combustible Liquids — Tenth Edition	
2. Standard 174-2021	Standard for Safety Household Elec. Storage Tank Water Heaters	
3. Standard 732-2018	Standard for Safety Oil-Fired Storage Tank Water Heaters	
4. Standard 1261-2017	Standard for Safety Elec. Water Heaters for Pools and Spas	
5. Standard 1431-2020	Standard for Safety Personal Hygiene and Health Care Appliances	
6. Standard 1453-2018	Standard for Safety Electric Booster and Commercial Storage Tank Water Heaters	
7. Standard 1746-2018	External Corrosion Protection Systems for Steel Underground Storage Tanks — Third Edition	
8. Standard 2523-2022	Standard for Safety Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters, And Boilers	

History: Cr. Register, April, 2000, No. 532, eff. 7-1-00; r. (2), renum. (3) to be (2) and am., r. and recr. Table 81.20-2, cr. Tables 81.20-3e, 81.20-7e and 81.20-10m, am. Tables 81.20-4 to 81.20-8 and 81.20-11, r. Table 81.20-14, Register, December, 2000, No. 540, eff. 1-1-01; correction in (1) made under s. 13.93 (2m) (b) 7., Stats., Register, December, 2000, No. 540; CR 02-002: r. and recr. Register April 2003 No. 568, eff. 5-1-03; CR 02-129: am Table 81.20-8 Register January 2004 No. 577, eff. 2-1-04; CR 04-035: am. Table 81.20-4 and 81.20-10m Register November 2004 No. 587, eff. 12-1-04; CR 07-100: cr. (4) Register September 2008 No. 633, eff. 10-1-08; CR 08-055: am. (1), Tables 81.20-1 to 81.20-9 and Tables 81.20-11 to 81.20-13, r. Table 81.20-10, renum. Table 81.20-10m to be Table 81.20-10 and am. Register February 2009 No. 638, eff. 3-1-09; CR 10-064: am. Tables 81.20-2, 81.20-3e, 81.20-4, 81.20-7 Register December 2010 No. 660, eff. 1-1-11; correction in (3) made under s. 13.92 (4) (b) 7., Stats., Register December 2011 No. 672; CR 13-062: am. Table 381.20-11 Register February 2014 No. 698, eff. 3-1-14; CR 17-065: am. (2) (a) (intro.), (b), (c), (3), Table 81.20-11 Register June 2018 No. 750, eff. 7-1-18; correction in numbering in Table 381.20-11 under s. 13.92 (4) (b) 1., Stats., Register June 2018 No. 750; CR 23-006: am. (3), Table 381.20-1, r. Table 381.20-2, Table 381.20-3, r. and recr. Table 381.20-3e, cr. Table 381.20-3p, r. and recr. Table 381.20-4 to Table 381.20-11, cr. Table 381.20-11m, am. Table 381.20-12, r. and recr. Table 381.20-13 Register September 2023 No. 813, eff. 10-1-23.