

CHAPTER 4 WATER

400.0 SPECIFICATIONS FOR WATER SERVICE CONNECTIONS

The following are the specifications required by the Water Department (Department) for water service connections.

400.1 Water Connection Pipe

Water Connection Pipe for all water service connections shall:

- (a) be trench laid or bored so that the service pipe is not used in the boring process. Ferrules shall not be installed in tunnel;
- (b) be of the same size as the meter except as otherwise provided. Minimum size $\frac{3}{4}$ inch (Single line residential fire sprinkler system (RFSS) services providing both domestic and fire supply and designed under the NFPA 13D Standard may have a water meter that is sized smaller than the service line, providing that an approved Fire Suppression System Permit (issued by the Department of Licenses and Inspections) exists to confirm that the meter size is sufficient to meet the domestic and fire requirements for the specific property.);
- (c) be at all times accessible for inspection inside the property from the entrance point to the meter;
- (d) be backfilled with neutral sand completely around the connection pipe and fittings except where bored. The sand backfill shall extend six (6) inches under and over the water main for the full width of the trench;
- (e) be laid at least four (4) feet below the confirmed grade or the existing grade when grade has not been confirmed;
- (f) include provision for meter installation by the Department;

(g) be free of paint or joint compound at joints between the water main and the meter.

400.2 Ferrule Connection Pipe

Except as otherwise provided in this Section, Ferrule Type Connection Pipe (2 inches and smaller) from the ferrule to the curb-stop shall be installed, repaired or replaced by or under the direction of a licensed master plumber, and shall:

- (a) be copper tubing, ASTM Spec. B-88, type K in soft temper with approved red brass fittings; or
- (b) be polyethylene service pipe, ASTM D 3350, as required, Water Department Standard Spec. W-21:
 - (1) When the minimum distance from the curb-stop to the building line is eight (8) feet six (6) inches; or
 - (2) When the Department of Licenses and Inspections permits the use of polyethylene distributing pipe from the curb-stop to the building line.
- (c) be at least five (5) feet in length with block supports where required, and include provision for expansion in accordance with Department standards; and
- (d) include a Department approved curb-stop and box located:
 - (1) Eighteen (18) inches behind the face of adjacent curb when the water main is located in the cartway or in the opposite footway; or
 - (2) As directed by the Water Department when the water main is located in the abutting footway.

Exception: For National Fire Protection Association (NFPA)13 and 13R residential fire suppression systems, ferrule connection

pipe may be installed, repaired, or replaced by a registered fire suppression contractor.

400.3 Valve Connection Pipe

Valve Type Connection Pipe (3 inches and larger) shall:

- (a) include a meter by-pass of the same size as the meter;
- (b) include approved by-pass valve, scaled closed by the Department.

400.4 General Requirements

- (a) Distributing Pipe from the curb line (or the curb-stop where required) into the premises, shall be in accordance with the Plumbing Code/Philadelphia Code.
- (b) All Water-Supply Systems three (3) inches and larger shall be disinfected in accordance with procedure set forth in the latest Department Standard Specification for Disinfecting Water-Supply Systems.
- (c) Whenever a service connection is repaired or replaced, it shall be in accordance with rules governing new service connections. When repair or replacement is between the main and the curb stop, such service connection shall be attached to the main by a ferrule not less than 3/4-inch in size.
- (d) Two or more water connections shall not simultaneously supply a single larger supply pipe unless specifically permitted by PWD in writing.

400.5 Water Service Connections to Property Owners Served by a Privately Owned Water Infrastructure.

The City, at its sole discretion, may permit property owners in a common interest community served by privately owned water infrastructure to connect to the City's water main for water service and be separately

metered by the Department if all of the following conditions are met:

- (a) The developer or unit owners' association has entered into an agreement with the City guaranteeing to build the private water infrastructure according to the Department's specifications and standards.
- (b) The Department has inspected the completed private water infrastructure and has certified that it meets the Department's specifications and standards.
- (c) Prior to installation, the Department has approved the locations of the meter boxes so that they comply with the Department's Regulations and current standards for collecting meter data. At no time will approval be granted if the distance between the first individual meter installed after the main connection and the water main is greater than thirty-five (35) feet.
- (d) The properties are served by a unit owners' association that is obligated to maintain the private water infrastructure.
- (e) The developer or unit owners' association has recorded a declaration against each property which includes the following provisions:
 - (1) A grant of irrevocable utility access for the City for the purposes of reading, maintaining, repairing and replacing City meters, initiating and terminating service; and
 - (2) A restriction against the sale or transfer of the common areas in which the private water infrastructure is located; and
 - (3) Notification that the unit owners' association, and each member thereof, shall retain full legal and financial responsibility for the ownership, maintenance, repair and replacement of the private water infrastructure; and

(4) Establishment of an escrow account in a City-approved amount reasonably calculated to provide for the maintenance, repair and replacement of the private water infrastructure.

(f) An individual curb stop and box has been installed for each property.

(g) A master valve has been installed at the point of connection between the private water infrastructure and the City's water main.

(h) All private infrastructure connections to the City's mains are in full compliance with the Department Regulations and all other applicable laws and regulations.

401.0 WATER METERING REQUIREMENTS

401.1 General Provisions

(a) Service connections to the City's water mains shall be metered by a City water meter (hereinafter "meter") for the purpose of recording usage, and for billing and collecting charges for services provided by the City. Fire service lines and domestic water lines shall be separate and separately metered except as provided for in Section 404.0 of these Regulations relating to Residential Fire Sprinkler Systems.

(b) The Department reserves the right, at its sole and exclusive discretion, to approve any service connections that are not metered when the Department determines that metering is impracticable.

(c) Property owners and/or Customers are required to notify the Department immediately if there is no functioning meter for recording usage at any premises served by City water mains.

(d) The City's meter includes the meter body, the register and any associated

hardware, equipment and devices for remotely collecting meter data.

401.2 City Water Metering

(a) The meter is the property of the City, and except as provided in Section 401.3 of these Regulations, the City is solely responsible for testing, maintaining, repairing and replacing the meter so that it remains operational in accordance with accepted utility standards for meter performance.

(1) All new meters shall be tested to confirm performance within industry standards before installation at a property.

(2) All previously used meters shall be tested prior to reinstallation at a property.

(3) A Customer may apply to the Department for a test of the accuracy of a meter as provided for in Section 306.1 of these Regulations.

(b) Meters shall be replaced regularly in accordance with industry standards for meters of the types and sizes provided by the City.

401.3 Property Owner

(a) The property owner shall set up the plumbing at the property to provide for the installation of the meter by the City. The plumbing shall include both an inlet valve and an outlet valve which shall be located as close as practicable to the meter, but allowing clearance for the flange bolts and couplings. The meter location must be easily accessible for the meter installation; if it is not, the Department may require the property owner to change the plumbing.

(b) All meters located inside a property shall be set as close as possible to the point where the water service pipe enters the property.

(1) When the building is set back more than thirty five feet (35') from the

building line of the street in which the City's water distribution line is located, the property owner must provide the following facilities:

(A) If the meter is one inch (1") or smaller, the meter shall be installed in a meter box of a design approved by the Department; or

(B) If the meter is one and-a-half inches (1½") or larger, the meter shall be installed in a meter pit of a design approved by the Department; and

(C) The meter box or meter pit shall be in a location approved by the Department.

(2) For the installation of meters three inches (3") or larger, the property owner shall submit a metering plan, and shall have secured the approval of the Department's Meter Unit of such metering plan before the service connection is made.

(c) The property owner shall choose a meter size that will insure accurate registration of use without excessive wear.

(1) If a meter shows excessive wear due to excessive rates of flow (as defined by the meter standards set by the American Water Works Association), the Department may require the property owner to increase the size of the service connection and meter, or provide an additional water service connection and meter.

(2) If a meter is registering low water use for the size of the chosen meter, such that the meter is inaccurately registering water use, the Department may require the property owner to decrease the size of the meter to improve meter accuracy.

(3) Any decrease in size from a meter three inches (3") or larger to a meter two inches (2") or smaller shall require a service

line replacement. In such cases, the Department shall waive the discontinuance of water charge for the larger service line and the ferrule connection charge for the smaller service line.

(4) Any changes in meter size or water service lines whether at the choice of the property owner or as required by the Department shall be at the expense of the property owner.

(d) As a condition of service, the property owner, Tenants or other occupants shall permit the City or its authorized agent reasonable access to the premises for the purpose of:

(1) installing a meter on any water service providing City water to the property as provided herein;

(2) repairing or replacing a meter in accordance with City policies;

(3) collecting water use data; and

(4) investigating meter-related problems including remote meter data collection failures, meter accuracy, illegal conditions and meter tampering.

(e) The failure to provide reasonable access to the premises for the metering purposes in Sub-section 401.3(d) of these Regulations shall result in the suspension of water service until such access is provided, in accordance with Sub-section 401.8(a) of these Regulations.

(f) The owner of an un-metered property shall apply for a permit from the Water Permit section of the Department of Licenses and Inspections and pay the established permit charge. The permit charge includes the installation of the meter by the Department. Upon securing the permit and completing the plumbing required for the meter installation, the

property owner shall request the Department to install the meter. The Department shall, by appointment with the property owner, install the meter and seal it on the line. Meter seals are used to detect unauthorized tampering or removal of the meter.

(g) Upon installation, the property owner shall be responsible for safeguarding the meter, meter components and the meter seals, and shall pay for necessary repairs and replacements due to any failure to provide adequate protection to the meter and seals from theft, vandalism, freezing, tampering or other damage. The costs of repair or replacement shall be in accordance with the established charges for meters and related services. The property owner shall also be responsible for the City's costs of investigating meter theft, vandalism, freezing, damages related to freezing or tampering incidents. City charges for such investigations shall be in accordance with the established charges.

(h) The property owner shall be responsible for the repair and maintenance of the plumbing that is accessory to the meter, such as inoperable or leaking valves and curb stops, weakened pipes and fittings, and shall provide and pay for such plumbing, repair and maintenance as City metering needs may require.

(i) The property owner, Tenant or other occupant shall not obstruct the meter so as to deny ready accessibility to the City for meter reading (including remote meter data collection), inspection, maintenance, repair or replacement.

(j) Only City personnel and the City's authorized agents are permitted to move or remove the meter. In order to make plumbing repairs or alterations, a licensed plumber must obtain prior permission from the Department to break the meter seals and remove the meter from the water line. A meter may be removed in an emergency, but

a licensed plumber must promptly notify the Department. The meter may not be removed from the premises. When the plumber's work is completed, the plumber shall notify the Department to reinstall and reseal the meter.

401.4 Illegal Conditions

(a) The property owner and/or Customer shall not arrange for, establish, or permit to continue, any plumbing arrangement that can be used to bypass the meter, or allow unmetered water to enter the premises or any other premises, or in any way limit the meter's effectiveness in measuring water consumption. Such conditions may constitute a theft of water service, and the responsible parties may be fined or otherwise prosecuted under applicable law.

(b) The City may suspend water service to any property with an illegal condition until that condition has been corrected to the satisfaction of the Department.

(c) In addition to any other charge, fines or penalties for such conditions, the property owner and/or Customer shall be responsible for investigation costs in accordance with the established charges.

401.5 Metering by Property Owner

(a) Private Meters: A property owner may install a private meter that is secondary or a sub-meter in the property to measure water used for its own purposes. Such meters shall be purchased, maintained and repaired at the property owner's expense, and they may be installed only on the premises side of the City meter.

(b) Open Fire System Meters: When an open fire system is metered, the property owner is responsible for the cost of the testing, repair and maintenance of the meter, and for its replacement when required.

(1) The property owner may request the Department to test, repair, maintain or repair the meter, and such costs shall be billed to the property owner.

(2) If the property owner fails to pay for such maintenance, repair or replacement, the account shall be placed on full billing as a General Customer for water service and, if applicable, sewer service.

401.6 Non-compliant Conditions

(a) Missing Meter: Where the City has supplied water service and there is no water meter to record use, the Revenue Department shall determine the quantity of water used based on the type of premises and service size. The property owner or Customer shall be provided with and billed for a new water meter. The Customer shall also be billed the City's additional and reasonable costs of calculating the bills for the unmetered service.

(b) Tampering: Where the City determines that a water meter has been tampered with, and as a result, the meter reading is an inaccurate record of water consumption, the Revenue Department shall determine the quantity of water used, based on the type of premises and meter size. The Customer shall also be billed the City's additional and reasonable costs of calculating the bills for tampered service. The Customer may also be subject to Section 401.4 of these Regulations.

(c) Defective Meter: Where the Water Department has determined the water meter to be defective, the Revenue Department shall determine the quantity of water used based on the usage for the periods prior to the meter becoming defective or by the type of premises and meter size. If the meter was damaged due to vandalism, freezing or tampering, the property owner or Customer shall be provided with and billed for a new water meter. The Customer shall also be

billed the City's additional and reasonable costs of calculating the bills for the unmetered service.

(d) Illegal Condition Charges: Where the City determines that an illegal condition exists, and as a result of the illegal condition, the meter reading is an inaccurate record of water use, the Revenue Department shall determine the quantity of water used, based on the type of premises and meter size. The Customer shall also be billed the City's additional cost of calculating the bills. The Customer and/or property owner shall also be subject to Section 401.4 of these Regulations.

401.7 Backflow Prevention

In setting up the plumbing of the premises, the property owner is required to comply with Department regulations and the Philadelphia Plumbing Code to protect the public water supply from backflow from the property owner's premises.

401.8 Noncompliance

(a) Failure to comply with the requirements of this Regulation shall result in the suspension of water service until such requirements are complied with. Proper notice of suspension procedures shall be provided as specified in the Department's current Commercial and Residential Service regulations.

(b) If the City is unable to suspend water service due to conditions at the premises that are in violation of law, the City may bring the property into compliance by itself or by employing plumbers or other tradesmen to perform the work. The property owner shall be responsible for the costs of compliance and shall be billed for such costs by the City.

402.0 USE OF FIRE HYDRANTS

(a) The Water Main Section of the Department shall issue permits for use of standard fire hydrants when no other adequate source of water is available, and in the opinion of the Department such use will not jeopardize the rights of the public.

(a) The charges for permits shall be:

(1) for use within a one week period, the current 3/4" minimum semiannual charge and allowance of water shall apply;

(2) for use within a six (6) month period, the current 1 1/2" minimum semiannual charge and allowance of water shall apply;

(3) for use in the hydrostatic test of tanks of large capacity, filling swimming pools other than domestic, or similar use, the charge for water shall be the current general service charge for water used above the cycle allowance. If the water is to be discharged into a sewer, the sewer charge shall be based on the current general service percentage charged for a 4" metered service;

(4) for excessive use or waste of water, additional charges may be assessed at the current rate for water used above the stated allowance;

(5) for use by a contractor in performing work under a contract with the City, the permit shall be issued at no charge upon presentation of a statement signed by the engineer representing the City.

402.1 Charities

There shall be no charge for permits for use of fire hydrants by charitable, non-profit and governmental agencies when approved by the Department.

402.2 Revocation

Permits may be revoked for cause at any time.

403.0 BACKFLOW PROTECTION

In order to protect the public water supply from potential cross connection and backflow hazards from connection to the City main, including both domestic and fire service connections within a property and connections to City fire hydrants, backflow protection technicians, property owners and water users shall comply with the requirements of Section 403.1 and 403.2 of these regulations.

403.1 Backflow Protection Assembly Requirements

(a) With the exception of single-family residences and multi-family buildings with four (4) units or fewer, the requirements of this regulation shall generally apply to all water-using structures and systems, regardless of their sizes, plumbing types and water usage patterns. Where the Water Department has determined that backflow prevention measures are needed at any specific single-family residence or multi-family building with four (4) units or fewer in order to protect the public water supply, this regulation shall also apply to that building. Backflow prevention measures include but are not limited to the following requirements.

(1) Any domestic and fire protection service line, including each line of a multiple service line, to any property, shall be equipped with an approved backflow prevention device or an approved air-gap separation on each line. Backflow prevention assemblies or air-gap separations must be installed where designated by the Water Department at the sole expense of the property owner. Backflow prevention assemblies or air-gap separations must be

from an approved Water Department list or otherwise approved by the Water Department. Installers must refer to the latest edition of the *Water Department Cross Connection Control Manual*, for installation requirements and listings of approved backflow prevention assemblies. This manual is available upon request from the Water Department or the Department of Licenses and Inspection.

(2) All other connections to the City water main, including standpipes leading to elevated tanks, temporary ferrules and hose connections, shall be equipped with approved backflow prevention assemblies.

(3) All required backflow prevention or air-gap separation assemblies shall be tested at least once every twelve (12) months. Any newly installed backflow prevention or air-gap separation device shall be tested prior to the initiation of service. The property owner shall be responsible for arranging for testing, for all costs of testing and related maintenance. After testing of a backflow prevention assembly, the results must be signed by a person on the respective registry of Backflow Prevention Technicians for Domestic Systems or the registry of Backflow Prevention Technicians for Fire Systems and sent to the Industrial Waste & Backflow Compliance Unit of the Water Department within three (3) days of completion of work.

(4) Property owners shall be responsible for: (i) maintaining records of such tests and related maintenance for a period of three (3) years; (ii) ensuring that backflow prevention and air-gap separation assemblies are maintained and kept in operating condition at all times; and (iii) arranging for testing of backflow prevention assemblies whenever required by this Section or a failure is suspected.

(5) As a condition of water and sewer service, the Water Department or other City

agency may enter and inspect any property connected to the public water supply system at reasonable times to ascertain if there is adequate backflow protection.

(6) The service of water to any premises or at any connection may be shut off by the Water Department if it or another City agency (i) is denied access to the property for inspection pursuant to this Section after reasonable notice or (ii) it determines there is inadequate backflow protection at the service connection and/or any connection to the main, or a failure to maintain the backflow prevention or air-gap separation assemblies.

403.2 Backflow Protection Technician Requirements

(a) The Water Department (Water Department) maintains two registries of the names of persons certified by the Water Department's designate certification organizations and licensed by the Department of Licenses and Inspection to install, test and service backflow prevention or air-gap separation assemblies. One registry lists the names of backflow prevention technicians for domestic service connections (Backflow Prevention Technicians for Domestic Systems), and the other registry lists backflow prevention technicians for fire service connections (Backflow Prevention Technicians for Fire System).

(b) The minimum requirements for a technician to be placed on the registry of Backflow Prevention Technicians for Domestic Systems are as follows:

(1) A license as a Registered Master Plumber issued by the Department of Licenses and Inspection;

(2) Successful completion of a four (4) day training by the New England Water Works Association or the American Society

of Sanitary Engineering. Testing is part of this training; and

(3) Submission of the Certified Backflow Assembly Technician Registration Form (CR100) to the Industrial Waste and Backflow Compliance Unit of the Water Department.

(c) The minimum requirements for a technician to be placed on the registry of Backflow Prevention Technicians for Fire Systems are as follows:

(1) A license as a Fire Suppression Systems Contractor issued by the Department of Licenses and Inspection;

(2) Successful completion of a four (4) day training by the New England Water Works Association or the American Society of Sanitary Engineering. Testing is part of this training; and

(3) Submission of the Certified Backflow Assembly Technician Registration Form (CR100) to the Industrial Waste and Backflow Compliance Unit of the Water Department.

(4) Fire suppression worker should have a license from the Department of Licenses and Inspection.

(d) The Water Department may remove any person from these registries if the person fails to comply with the minimum requirements for placement on the registries.

(e) Only a person on the registry of Backflow Prevention Technicians for Domestic Systems may: (i) sign permit applications for backflow prevention assembly installation on domestic service lines as a certified technician; and (ii) sign approvals on PWD backflow prevention assembly test and maintenance records for domestic service and other PWD forms for domestic service as a certified technician.

(f) Only a person on the registry of Backflow Prevention Technicians for Fire Systems may: (i) sign permit applications for backflow prevention assembly installation on fire service connections as a certified technician; and (ii) sign approvals on PWD backflow prevention assembly test and maintenance records for fire service and other PWD forms for fire service as a certified technician.

(g) No person shall engage, or cause or direct any other person to engage, in installation, repair or inspection/testing work on domestic service connection backflow prevention assemblies unless such person is on the registry of Backflow Prevention Connection for Domestic Systems, or is licensed as a Registered Master Plumber or journeyman plumber or registered as an apprentice plumber pursuant to Section 9-1003 of the Philadelphia Code and performs such work under the supervision of a person on the registry of Backflow Prevention Technicians for Domestic Systems.

(h) No person shall engage, or cause or direct any other person to engage, in installation, repair or inspection/testing work on fire suppression system backflow prevention assemblies unless such person is on the registry of Backflow Prevention Technicians for Fire Systems, or has an apprentice permit from the Department of License and Inspection pursuant to Section 9-2505 of the Philadelphia Code and performs such work under the supervision of a person on the registry of Backflow Prevention Technician for Fire Systems.

(i) Backflow prevention technicians are subject to all requirements of the Philadelphia City Code and regulations of the Water Department and the Department of Licenses and Inspection.

404.0 RESIDENTIAL FIRE SPRINKLER SYSTEMS (RFSS)

When a residential property owner installs a residential fire sprinkler system using a single line to serve the domestic and sprinkler plumbing systems (“RFSS”) in accordance with the National Fire Protection Association (NFPA) 13D standard or equivalent, such RFSS shall be in accordance with the following:

(a) Single Water Service Line

(1) A single water service line from one ferrule connection to the water main shall supply water to the domestic water and sprinkler plumbing systems.

(2) The service line shall be one of the following sizes: ¾”, 1”, 1 ½”, 2”.

(b) Internal Plumbing Configuration

(1) Inside the building and after the meter, the water supply line may:

(i) branch to separate sprinkler system and domestic water system lines (“Branch System”), or

(ii) continue as one line that serves both the sprinkler and domestic water systems in a comingled network system (“Network System”) in accordance with Philadelphia Code.

(c) Metering

(1) A Department-approved RFSS meter shall be installed on the water supply line. In a Branch System, the meter shall be installed upstream of any branching of the domestic water line and sprinkler system line.

(2) Meter sizing, piping, valving and appurtenances shall be according to PWD Regulations. PWD shall provide, and the

property owner shall maintain, the meter according to PWD Regulations.

(d) Permit and Customer Account

(1) The property owner is subject to PWD Regulations and Philadelphia Code governing permits and charges.

(2) The property owner is subject to PWD Regulations governing Customer accounts with the Water Revenue Bureau (“WRB”).

(e) Water Quality Protection

(1) Subject to Sections (e)(2) and (e)(3) below, the following applies to the two internal plumbing configurations defined in Section B above:

(i) No water quality protection is required in a Network System.

(ii) In a Branch System, a water supply line shall be installed from a sprinkler head to the toilet tank that is farthest from the point where the water supply line enters the building (“Far Toilet”). The sprinkler system installer shall affix a permanent sign to the sprinkler system piping noting that the sprinkler system line is connected to the Far Toilet. This sign shall not be removed.

(2) Backflow prevention measures may be required on an RFSS installation if PWD determines it is necessary under Regulation 403.1(a) or under (e)(3) below.

(3) A Department-approved backflow prevention device shall be installed on a dedicated sprinkler line if additives, such as antifreeze chemicals, are used.

(f) Materials

All RFSS piping, fixtures, and other plumbing materials shall conform to Philadelphia Code and Regulations.

(g) Installation, Inspection, Testing and Maintenance

RFSS installation, inspection, testing and maintenance shall be according to Philadelphia Code.

(h) Shutoff Policy and Notification

The property owner is subject to existing rules governing shutoff of service under these Regulations.