Watts Regulator Examines Product Applications for

The 2000 National Standard Plumbing Code

WATTS® REGULATOR

Introduction

We are pleased to present to you excerpts from the most recent edition of the National Standard Plumbing Code along with applicable specifications for Watts Regulator products that apply to these sections. Excerpts of the National Standard Plumbing Code 2000 are presented as extracts at the top of the page along with engineering specifications for Watts Regulator Company products that comply with the corresponding NSPC Code requirements at the bottom.

Table of Contents

NOTE:

All Watts Regulator Company engineering specifications shown on the following pages are for products that comply with the corresponding NSPC Code requirements above them. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

NSPC 2000 Code - Chapter 7 - Plumbing Fixtures, Fixture Fittings and Plumbing Appliances

NSPC 2000 Section 7.7 Bidets

7.7.2 Backflow Prevention. Bidets having integral flushing rims shall have a vacuum breaker assembly on the mixed water supply to the fixture. Bidets without flushing rims shall have an over-the-rim supply fitting providing the air gap required by Chapter 10.

Applicable Watts Product for NSPC Code Section 7.7.2:

Watts Series 9D

Backflow Preventer with Intermediate Atmospheric Vent (1/2" - 3/4")

Specifications:

Important: Inquire with governing authorities for local installation requirements. A Dual Check with Atmospheric Vent shall be installed at referenced cross-connections. Valve shall feature stainless steel and rubber internals protected by an integral strainer. Primary check shall be rubber to rubber seated, backed by the secondary check with rubber to metal seating. The device shall be ASSE approved under Standard 1012 and shall be a Watts Regulator Company Series 9D.

Watts Series 9D

Applicable Watts Product for NSPC Code Section 7.7.2:

Watts Series 008PCQT

Health Hazard Vacuum Breaker, Anti-Siphon, Spill Resistant (3/8" - 1")

Specifications:

A spill-resistant vacuum breaker (SVB) shall be installed in accordance with the manufacturer's instructions, as noted on the plans. The valve shall consist of a one-piece modular check and float assembly made of engineered thermoplastic and housed in a bronze body. Springs shall be stainless steel. The valve shall be constructed with a molded diaphragm separating the air inlet from the potable water supply to prevent spillage. The valve shall be a Watts Regulator Company Series 008PCQT.

Watts Series 008PCQT

Applicable Watts Product for NSPC Code Section 7.7.2:

Watts Series 800M4QT

Anti-siphon Pressure Vacuum Breakers (1/2" - 2")

Specifications:

A pressure anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the back siphonage of contaminated water. This assembly is not to be used where there is a possibility that a back pressure condition may develop. The assembly will incorporate an acetal bonnet with silicone rubber O-ring seal and silicone rubber seat disc. The valve shall have replaceable seats. Check assembly shall be guided over its full stroke by 'V' notch guides. The assembly shall meet the requirements of ANSI/ASSE Standard 1020. The valve shall be a Watts Regulator Company Series 800M4QT.

Watts Series 800M4QT

Applicable Watts Product for NSPC Code Section 7.7.2:

Watts Series 288A

Hot or Cold Water Anti-Siphon Vacuum Breaker (1/4" - 3")

Specifications:

An atmospheric-type anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the back-siphonage of contaminated water. This device is not to be used under continuous pressure or where there is a possibility that a back-pressure condition may develop. The device shall meet the requirements of ASSE Standard 1001, ANSI A112.1.1 and CSA B64, and shall be a Watts Regulator Company Series 288A.

Watts Series 288A

NSPC 2000 Code - Chapter 7 - Plumbing Fixtures, Fixture Fittings and Plumbing Appliances

NSPC 2000 Section 7.11 Sinks Bidets

7.11.5 Sink Faucets

a. Sink faucets having a hose thread or other means of attaching a hose to the outlet shall be protected from back-siphonage by either an integral vacuum breaker, an atmospheric vacuum breaker attached to the outlet, or pressure-type vacuum breakers on the fixture supply lines.

b. Faucets for kitchen sinks shall be designed and manufactured so that they will not exceed the flow rate for kitchen faucet specified in ASNI/ASME A112.18.1M.

Applicable Watts Product for NSPC Code Section 7.11.5:

Watts Series 288A

Hot or Cold Water Anti-Siphon Vacuum Breaker (1/4" - 3")

Specifications:

An atmospheric-type anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the back-siphonage of contaminated water. This device is not to be used under continuous pressure or where there is a possibility that a back-pressure condition may develop. The device shall meet the requirements of ASSE Standard 1001, ANSI A112.1.1 and CSA B64, and shall be a Watts Regulator Company Series 288A.

Watts Series 288A

Applicable Watts Product for NSPC Code Section 7.11.5:

Watts Series 008PCQT

Health Hazard Vacuum Breaker, Anti-Siphon, Spill Resistant (3/8" - 1")

Specifications:

A spill-resistant vacuum breaker (SVB) shall be installed in accordance with the manufacturer's instructions, as noted on the plans. The valve shall consist of a one-piece modular check and float assembly made of engineered thermoplastic and housed in a bronze body. Springs shall be stainless steel. The valve shall be constructed with a molded diaphragm separating the air inlet from the potable water supply to prevent spillage. The valve shall be a Watts Regulator Company Series 008PCQT.

Watts Series 008PCQT

Applicable Watts Product for NSPC Code Section 7.11.5:

Watts Series NLF9

Specifications:

A vacuum breaker shall be installed where indicated on the plans to prevent the back-siphonage of contaminated water. The device shall be suitable for either hot or cold applications and shall have brass construction with polished chrome plating, stainless steel working parts and rubber diaphragm and disc. The valve shall be a Watts Regulator Company Series NLF9.

Watts Series NLF9

NSPC 2000 Code - Chapter 7 - Plumbing Fixtures, Fixture Fittings and Plumbing Appliances

NSPC 2000 Section 7.18 Special Installations

7.18.1 Protection of Water Supply. The water supply to special installations shall be protected from back-flow in accordance with Chapter 10. Examples of such special installations include decorative fountains, ornamental pools, waterfalls, swimming and wading pools, baptisteries, and similar custom-built equipment.

See Backflow Prevention Guide in back of this publication for applicable products.

NSPC 2000 Section 7.19 Flushing Devices for WaterClosets and Urinals

7.19.3 Flush Tanks

a. Flush tanks shall have ballcocks or other means to refill the tank after each discharge and to shutoff the water supply when the tank reaches the proper operating level. Ballcocks shall be the anti-siphon type and comply with ANSI/ASSE 1002.

b. Except in approved water closet and flush tank designs, the seat of the tank flush valve shall be at least 1 inch above the flood level rim of the fixture bowl.

c. The flush valve shall be designed so that it will close tightly if the tank is flushed when the fixture drain is clogged or partly restricted, so that water will not spill continuously over the rim of the bowl or backflow from the bowl to the flush tank.

d. Flush tanks shall include a means of overflow into the fixture served having sufficient capacity to prevent the tank from overflowing with the ballcock fully open.

See Figure 7.19.3 and Section 10.5.5

NOTE: BALLCOCKS SHALL MEET ASSE STANDARD #1002, BALLCOCKS SHALL HAVE CRITICAL LEVEL CLEARANCE. SOME WATER CLOSETS HAVE TANK HOLE PUNCHINGS FOR SPILLAGE TO ASSURE BACKFLOW PROTECTION.

NOTE: ALL FIXTURES WHICH ARE SUPPLIED BY A FLUSH TANK SHALL BE PROTECTED WITH AN AUTOMATIC WATER SHUT-OFF FLOAT CONTROL WHICH RESPONDS TO THE HEIGHT OF THE WATER IN THE TANK. THIS SAME FLOAT CONTROL VALVE MECHANISM SHALL BE EQUIPPED WITH THE APPROVED AND REQUIRED ANTISIPHON CAPABILITIES.

IN LOW PROFILE TANKS WHERE THE LEVEL IN THE TANK IS BELOW THE FLOOD LEVEL RIM OF THE BOWL OR SHEATH, THE ARRANGEMENT IS SUCH THAT WATER ENTERING THE SHEATED AREA WILL SPILL TO THE FLOOR.

Applicable Watts Product for NSPC Code Section 7.19.3:

Watts Series Governor 80

Ball Cock and Thermal Expansion Relief Valve (10", 11 1/2", 12 1/2")

Specifications:

The valve shall be tested and certified under ASSE Standard 1002 and meet IAPMO, and CSA requirements for anti-siphon ball cocks. All materials in contact with water shall be FDA approved under DVR-21-177-2600. The thermal expansion relief valve shall be standardly set at 80psi to meet existing codes and shall be non-adjustable. The valve shall be a Watts Regulator Company Series Governor 80.

Watts Series Governor 80®

NSPC 2000 Section 10.4 Cross Connection Control

10.4.3 Cross Connection Control. Potable water supplies shall be protected in accordance with the cross connection control program of the Administrative Authority and the provisions of this Code. Where required, cross connection control shall be by containment of the premises or by individual outlet protection.

Where containment is required, the potable water supply shall be protected by a backflow protection devices installed immediately downstream of the meter or between the service shutoff valve and the first outlet or branch connection. Where individual outlet protection is required, each potential cross connection within the premises shall be protected.

10.4.4 Private Supplies

a. Private potable water supplies (i.e., wells, cisterns, lakes, streams) shall require the same backflow protection that is required for a public potable water supply.

b. Cross connection between a private potable water supply and a public potable water supply shall not be made unless specifically approved by the Administrative Authority.

NOTE: INTERCONNECTIONS BETWEEN PRIVATE SUPPLIES ARE PROHIBITED BECAUSE THE WATER QUALITY OF THE PRIVATE SUPPLY IS NOT CONTINUOUSLY MONITORED AS TO ITS POTABILITY. AS THE USE OF PRIVATE WATER SUPPLY CIRCULATION SYSTEMS FOR HEATING AND COOLING SYSTEMS AND PROCESS WORK IS BECOMING MORE PREVALENT, IT IS REQUIRED THAT SUCH SUPPLIES BE PROPERLY ISOLATED FROM THE PUBLIC SUPPLY AND PROPERLY TAGGED IN CONFORMANCE WITH SECTION 10.2.

See Backflow Prevention Guide in back of this publication for applicable products.

NSPC 2000 Section 10.5 Backflow Prevention

10.5.1 Plumbing Fixtures, Appliances, Water Supply Outlets. The water supply shall be protected from back-siphonage by a fixed air gap between the potable water outlet and the overflow level of the fixture or receptor.

10.5.3 Required Backflow Prevention Devices. In the absence of a cross connection control program under Section 10.4.3, the following requirements shall apply:

A. Low Hazard - Back Siphonage - Intermittent Pressure
   1. Air gap
   2. Atmospheric vacuum breaker
   3. Hose connection vacuum breaker
   4. Any backflow protection device approved for protection against continuous pressure back-siphonage.

B. Low Hazard - Back-Siphonage - Continuous Pressure
   1. Pressure-type vacuum breaker
   2. Spill-proof vacuum breaker (SVB)
   3. Double check with intermediate atmospheric vent
   4. Double check valve assembly
   5. Reduced pressure backflow preventer assemblies

C. Low Hazard - Back-Pressure
   1. Double check with intermediate atmospheric vent
   2. Double check valve assembly
   3. Reduced pressure backflow preventer assemblies

D. High Hazard - Back-Siphonage
   1. Pressure-type vacuum breaker
   2. Spill-proof vacuum breaker (SVB)
   3. Reduced pressure backflow preventer assemblies

E. High Hazard - Back-Pressure
   1. Reduced pressure backflow preventer assemblies

Applicable Watts Product for NSPC Code Section 10.5.3:

Section	Watts Model(s)
A.1	Air Gap
A.2	288A
A.3	Series 8
A.4	709
B.1	800M4QT
B.2	008PCQT
B.3	9D
B.4	709, 007, 774
B.5	008PCQT, 909, 994
C.1	9D
C.2	007, 709, 774
C.3	009, 909, 994
D.1	800M4QT
D.2	008PCQT
D.3	008PCQT, 909, 994
E.1	009, 909, 994

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

10.5.5 Installation of Backflow Preventers

a. Devices of All Types: All backflow prevention devices shall be accessible. Backflow prevention devices having atmospheric vents shall not be installed in pits, vaults, or similar potentially submerged locations. Vacuum breakers and other devices with vents to atmosphere shall not be located within fume hoods.

b. Atmospheric Vacuum Breakers: Pipe applied atmospheric vacuum breakers shall be installed with the critical level at least six inches above the flood level rim or highest point of discharge of the fixture being served. Approved deck-mounted and pipe-applied vacuum breakers and vacuum breakers within equipment, machinery and fixtures where the critical level is a specified distance above the source of contamination shall be installed in accordance with manufacturer's instructions with the critical level not less than one inch above the flood level rim. Such devices shall be installed on the discharge side of the last control valve to the fixture and no shut-off valve or faucet shall be installed downstream of the vacuum breaker. Vacuum breakers on urinals shall be installed with the critical level six inches above the flood level rim.

Applicable Watts Product for NSPC Code Section 10.5.5:

Watts Series WB

Insulated Enclosures

Specifications:

Watts Series WB

Backflow preventer assemblies subjected to potential freezing conditions shall be protected with the WattsBox enclosure as shown in the accompanying plan. Enclosure shall be designed for 12" clearance between valve and grade. The enclosure shall be of reinforced aluminum or fiberglass construction, providing access through doors and/or a hinged lid for testing/certification purposes. It must also be totally removable for maintenance purposes. The enclosure shall be structurally lined with a unicellular, non-wicking insulation consisting of a sandwich laminate or applied by spray. It shall contain a thermostatically controlled heat source mounted to the interior wall or on the backflow preventer to provide protection to -30°F. No wood or "particle board" shall be allowed in assembly. Insulation mounted with glue will be cause for rejection. Power source will be protected with a ground fault circuit interrupting receptacle, UL Standard 943, NEMA 3R, installed by others, inside the box. The enclosure shall contain drain openings sized to accommodate the maximum discharge of the reduced pressure assembly. Drain openings shall open to discharge under the most severe conditions. These openings are protected against intrusion of either wind, debris or animal. The enclosure is provided with means of permanent anchor and "lockable" access doors and/or lid to prohibit theft or vandalism. The enclosure shall be factory assembled and delivered to the site ready to install with no drilling, screwing or riveting of enclosure required on site. The enclosure and the backflow preventer shall be covered by a single warranty policy. The enclosure shall be a Watts Regulator Company Series WB.

Applicable Watts Product for NSPC Code Section 10.5.5:

Watts Series WB-T

Tall Insulated Enclosures

Specifications:

Backflow prevention assemblies subjected to potential freezing conditions shall be protected with the WattsBox enclosure as shown in the accompanying plan. The enclosure shall be of reinforced aluminum or fiberglass construction, providing access through doors and/or a hinged lid for testing/certification purposes. It must also be totally removable for maintenance purposes. The enclosure shall be structurally lined with a unicellular, non-wicking insulation consisting of a sandwich laminate or applied by spray. It shall contain a thermostatically controlled heat source mounted to the interior wall or on the backflow preventer to provide protection to -30°F. No wood or "particle board" shall be allowed in assembly. Insulation mounted with glue will be cause for rejection. Power source will be protected with a ground fault circuit interrupting receptacle, UL Standard 943, NEMA 3R, installed by others, inside the box. The enclosure shall contain drain openings sized to accommodate the maximum discharge of the reduced pressure assembly. Drain openings shall open to discharge under the most severe conditions. These openings are protected against intrusion of either wind, debris or animals. The enclosure is provided with means of permanent anchor and "lockable" access doors and/or lid to prohibit theft or vandalism. All "wet" portions of the backflow prevention assembly shall be protected within the enclosure. Fire department hose connections and OS&Y indicating valve handles shall be maintained outside the enclosure. The enclosure and the backflow preventer shall be covered by a single warranty policy. The enclosure shall be a Watts Regulator Company Series WB-T.

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

10.5.6 Maintenance and Testing of Backflow Prevention Devices

a. Devices installed in a building potable water supply distribution system for protection against back flow shall be maintained in good working condition by the person or persons responsible for the maintenance of the system.

b. Devices which are designed to be field tested shall be tested prior to final inspection of the initial installation and once each year thereafter, using field test procedures conforming to ANSI/ASSE 5010 Series Professional Qualifications Standards or equivalent.

NOTE: Testable devices are those backflow prevention devices having test cocks and include, but are not limited, to the following:

1. Pressure vacuum breakers
2. Spill-proof vacuum breakers
3. Double check valve assemblies
4. Double check detector assemblies
5. Reduced pressure backflow preventer assemblies
6. Reduced pressure detector assemblies

c. Where tests indicate that the device is not functioning properly, it shall be serviced or repaired in accordance with the manufacturer's instructions and be retested.

d. Testing and repair of devices shall be performed by certified individuals approved by an agency acceptable to the Administrative Authority. Certification for testing shall be in accordance with ANSI/ASSE 5000 or equivalent. Certification for repair shall be in accordance with ANSI/ASSE 5030 or equivalent. Certification shall include not less then 32 hours of combined classroom and practice training and successful completion of a written and practical examination.

e. Copies of test reports for the initial installation shall be sent to the Administrative Authority and the water supplier. Copies of annual test reports shall be sent to the water supplier.

f. Where a continuous water supply is critical and cannot be interrupted for the periodic testing of a backflow prevention device, multiple backflow prevention devices or other means of maintaining a continuous supply shall be provided.

Applicable Watts Product for NSPC Code Section 10.5.6:

Watts Model TK-DL

Test Kit with Digital Print Out

Specifications:

Backflow preventer test kit shall be of solid state construction with digital display, thermal tape printout, downloading capability, 16 key input keyboard, and 32K of battery backed up memory. Test kit shall come complete with carrying case, carrying strap, AC charger, a kit of brass adapters, three 6 foot color coded hoses, instructions, warranty, and operation manual. Test kit shall be a Watts Regulator Company model TK-DL.

Watts TK-DL

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

10.5.8 Connections to Carbonated Beverage Dispensers. The water supply to a carbonated beverage dispenser shall be protected against backflow with an integral backflow preventer conforming to ASSE 1022 or an air gap. Carbonated beverage dispensers and carbonated beverage dispensing systems without an integral backflow preventer conforming to ASSE 1022 or an air gap shall have the water supply protected with a double check valve with atmospheric vent conforming to ASSE 1022.

Applicable Watts Product for NSPC Code Section 10.5.8:

Watts Series SD-3

Backflow Preventer for Carbonated Beverage Machines ($^1/_2$", $^3/_8$")

Specifications:

Backflow preventer body and adapters shall be 316 stainless steel construction and all rubber components shall comply with FDA food additive regulations. All materials in contact with the potable water shall be in compliance with the requirements of the Safe Drinking Water Act, Public Law 93-523, National Interim Primary Drinking Water Regulations. Strainer shall be manufactured from NSF approved acetal plastic.
The valve shall be a Watts Regulator Company Series SD-3.

Watts Series SD-3

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

10.5.9 Protection from Fire Systems

a. Except as provided under subparagraphs b and c below, potable water supplies to fire protection systems, including but not limited to standpipes and automatic sprinkler systems, shall be protected from back-pressure and back-siphonage by one of the following testable devices:

1. Double check valve assembly
2. Double check detector assembly
3. Reduced pressure backflow preventer assembly
4. Reduced pressure detector assembly

b. Where fire protection systems supplied from a potable water system include a fire department (siamese) connection which is located less than 1700 feet from a non-potable water source that could be used by the fire department as a secondary water supply, the potable water supply shall be protected by one of the following:

1. Reduced pressure backflow preventer assembly
2. Reduced pressure detector assembly

NOTE: Non-potable water sources include fire department vehicles carrying water of questionable quality or water that is treated with antifreeze, corrosion inhibitors, or extinguishing agents.

c. Where antifreeze, corrosion inhibitors, or other chemicals are added to a fire protection system supplied from a potable water supply, the potable water system shall be protected by one of the following:

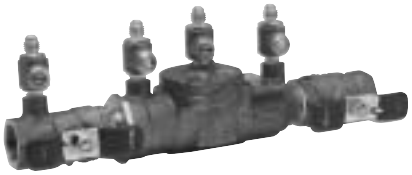
1. Reduced pressure backflow preventer assembly
2. Reduced pressure detector assembly

d. Whenever a backflow device is installed in the potable water supply to a fire protection system, the hydraulic design of the system shall account for the pressure drop through the backflow device. If such devices are retrofitted for an existing fire protection system, the hydraulics of the sprinkler system design shall be checked to verify that there will be sufficient water pressure available for satisfactory operation of the fire sprinklers.

Applicable Watts Product for NSPC Code Section 10.5.9:

Watts Series 007

Double Check Valve Assembly (1/2" - 3")



Watts Series 007

Specifications:

A double check valve backflow preventer shall be installed at each noted location. The assembly shall consist of two positive seating check modules with captured springs and rubber seat discs. The check module seats and seat discs shall be replaceable. Service of all internal components shall be through a single access cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves; four top mounted, resilient seated test cocks. The assembly shall meet the requirements of ASSE Standard 1015 and AWWA Standard C510. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. The valve shall be a Watts Regulator Company Series 007.

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

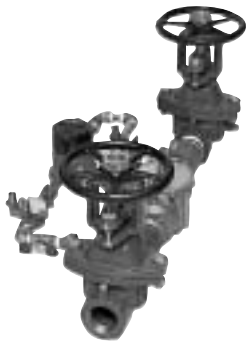
10.5.9 Protection from Fire Systems - cont'd

Applicable Watts Product for NSPC Code Section 10.5.9:

Watts Series 007DCDA

Double Check Detector Assembly (2"-3")

Specifications:



Watts Series 007DCDA

A double check detector assembly backflow preventer shall be installed on fire protection systems when connected to a potable water supply. Degree of hazard present is determined by the local authority having jurisdiction. The backflow preventer shall be a complete assembly including UL listed resilient seated OS&Y shutoff valves and four test cocks. The test cocks located on the backflow preventer shall be mounted at the top of the valve to reduce clearance problems and to assist in the evacuation of air from the assembly. The assembly shall consist of two independently operating modular poppet-type check valves. The check valves shall utilize captured springs and shall have replaceable seats. The checks shall be double-guided, both along the outside edge of the check module and through the center stem assembly. The seats shall be replaceable without the use of special tools. Seat retention shall be done by the use of an interlocking bayonet style cage and the use of threaded seats or seat screws is prohibited. Access to the internal check assemblies shall be via a single top entry cover. The cover shall be securely held in place by stainless steel bolts. Where applicable the unit shall be FM approved with FM approved OS&Y resilient seated shutoff valves. The assembly shall include an auxiliary bypass line consisting of an approved backflow preventer and water meter. The assembly shall be listed or approved under the requirements of ASSE Standard. 1048, AWWA Standard. C510-92 and CSA B64.5. Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. The assembly shall be a Watts Regulator Company Series 007DCDA.

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

10.5.10 Protection from Lawn Sprinklers and Irrigation Systems

a. Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following devices:
   1. Atmospheric vacuum breaker
   2. Pressure vacuum breaker (PVB)
   3. Spill-proof vacuum breaker (SVB)
   4. Reduced pressure backflow preventer assembly

b. Where sprinkler and irrigation systems have pumps, connections for pumping equipment, auxiliary air tanks or are otherwise capable of creating back-pressure, the potable water supply shall be protected by the following type of device if the backflow device is located upstream from the source of back-pressure.
   1. Reduced pressure backflow preventer assembly

c. Where systems have a backflow device installed downstream from a potable water supply pump or a potable water supply pump connection, the device shall be one of the following:
   1. Atmospheric vacuum breaker
   2. Pressure vacuum breaker (PVB)
   3. Spill-proof vacuum breaker (SVB)
   4. Reduced pressure backflow preventer assembly

d. Where systems include a chemical injector or any provisions for chemical injection, the potable water supply shall be protected by the following:
   1. Reduced pressure backflow preventer assembly

Applicable Watts Product for NSPC Code Section 10.5.10 (a & c):

Watts Series 800M4FR

Freeze-Resistant Pressure Vacuum Breaker (1/2" - 2")

Specifications:

An anti-siphon pressure vacuum breaker shall be installed where indicated on the plans to prevent the back-siphonage of contaminated water. This assembly is not to be used where there is a possibility that a back pressure condition may develop. The assembly will incorporate an acetal bonnet with silicone rubber O-ring seal and silicone rubber seat disc. The valve shall have replaceable seats. Check assembly shall be guided over its full stroke by 'V' notch guides. The assembly shall include an internal, built-in relief valve designed to protect the internal components and the backflow body from freezing. The relief valve action shall be repeatable, automatically re-seating when the pressure within the valve is below the set point of the freeze relief valve. The assembly shall meet the requirements of ANSI/ASSE Standard 1020. The valve shall be a Watts Regulator Company Series 800M4FR.

Watts Series 800M4FR

Applicable Watts Product for NSPC Code Section 10.5.10 (a & c):

Watts Series 800M4QT

Anti-siphon Pressure Vacuum Breakers (1/2" - 2")

Specifications:

A pressure anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the back siphonage of contaminated water. This assembly is not to be used where there is a possibility that a back pressure condition may develop. The assembly will incorporate an acetal bonnet with silicone rubber O-ring seal and silicone rubber seat disc. The valve shall have replaceable seats. Check assembly shall be guided over its full stroke by 'V' notch guides. The assembly shall meet the requirements of ANSI/ASSE Standard 1020. The valve shall be a Watts Regulator Company Series 800M4QT.

Watts Series 800M4QT

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

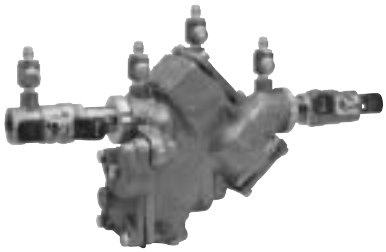
10.5.10 Protection from Lawn Sprinklers and Irrigation Systems - cont'd

Applicable Watts Product for NSPC Code Section 10.5.10:

Watts Series 909

Reduced Pressure Zone Backflow Preventer (3/4" - 2")

Specifications:



Watts Series 909

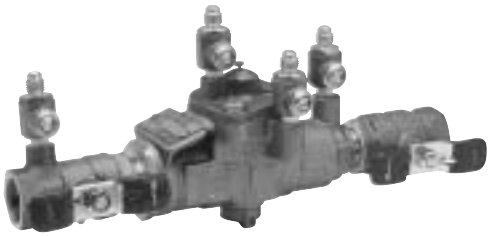
A reduced pressure zone backflow preventer shall be installed at each cross connection to prevent backsiphonage and back-pressure backflow of hazardous materials into the potable water supply. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves. Back-siphonage protection shall include provision to admit air directly into the reduced pressure zone via a separate channel from the water discharge channel, or directly into the supply pipe via a separate vent. The assembly shall include two resilient seated shutoff valves before and after the assembly, test cocks and a protective strainer upstream of the No. 1 shutoff valve. The assembly (specify Model 909 for temperatures up to 140°F (60°C) or Model 909HW for temperatures up to 210°F (99°C)) shall meet the requirements of ASSE Standard 1013; AWWA Standard C-511-92 CSA B64.4; FCCCHR of USC Manual Section 10. Listed by IAPMO (NSPC). SBCCI (Standard Plumbing code). The valve shall be a Watts Regulator Company Series 909QT or 909QTHW.

Applicable Watts Product for NSPC Code Section 10.5.10:

Watts Series 009

Reduced Pressure Zone Backflow Preventer (1/4" - 3")

Specifications:



Watts Series 009

A reduced pressure zone backflow preventer shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting. The assembly shall meet the requirements of: USC Manual 8th Edition; ASSE Standard. 1013; AWWA Standard. C511; CSA B64.4. The valve shall be a Watts Regulator Company Series 009.

Applicable Watts Product for NSPC Code Section 10.5.10 (a & c):

Watts Series 008PCQT

Health Hazard Vacuum Breaker, Anti-Siphon, Spill Resistant (3/8" - 1")

Specifications:

Watts Series 008PCQT

A spill-resistant vacuum breaker (SVB) shall be installed in accordance with the manufacturer's instructions, as noted on the plans. The valve shall consist of a one-piece modular check and float assembly made of engineered thermoplastic and housed in a bronze body. Springs shall be stainless steel. The valve shall be constructed with a molded diaphragm separating the air inlet from the potable water supply to prevent spillage. The valve shall be a Watts Regulator Company Series 008PCQT.

NSPC 2000 Section 10.5 Backflow Prevention - cont'd

10.5.13 Protection for Special Equipment

The water supply for any equipment or device that creates a cross-connection with the potable water supply shall be protected against backflow as required in Section 10.5. Such equipment and devices includes, but is not limited too, chemical dispensers, portable cleaning equipment, sewer and drain cleaning equipment, and dental pump equipment.

a. Chemical Dispensers. Where chemical dispensers connect to the water distribution system, the water supply system shall be protected against backflow in accordance with Section 10.5, which allows for an air gap, atmospheric or pressure type (PVB or SVB), or a reduced pressure principle assembly.

b. Portable Cleaning Equipment. Where the portable cleaning equipment connects to the water distribution system, the water supply system shall be protected against backflow in accordance with Section 10.5, which allows for an air gap, atmospheric or pressure (PVB or SVB), or a reduced pressure principle assembly.

c. Dental Pump Equipment. Where dental pumping equipment connects to the water distribution system, the water supply system shall be protected against backflow in accordance with Section 10.5, which allows for an air gap, atmospheric or pressure (PVB or SVB), or a reduced pressure principle assembly.

See Backflow Prevention Guide in back of this publication for applicable products.

NSPC 2000 Section 10.8 Water Pressure Booster Systems

10.8.1 Water Pressure Booster Systems Required. When the water pressure in the public water main or individual water supply system is insufficient to supply the potable peak demand flow to plumbing fixtures and other water needs freely and continuously with the minimum pressure and quantities specified in Section 10.14.3, or elsewhere in this Code, and in accordance with good practice, the rate of supply shall be supplemented by one of the following methods:

a. An elevated water tank.

b. A hydro-pneumatic pressure booster system.

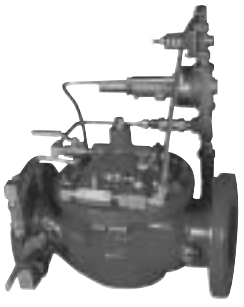
c. A water pressure booster pump.

Applicable Watts Product for NSPC Code Section 10.8.1:

Watts Series 115-AN

Pressure Booster System

Specifications:



Watts Series 115-AN

Pressure booster system shall have as final pressure control, Watts ACV model 115-AN pressure reducing, pressure sustaining, and check valve. Pressure sustaining control shall be piped to the suction side of the pump. The control system shall be equipped with manual ball valve shut offs to allow field repairs and maintenance in the line, opening and closing speed controls and a pilot system strainer. Main valve shall be cast iron with fused epoxy coating inside and out. When the valve is the closed position, sealing at the seat shall be accomplished by contact between one edge of a securely retained elastomer quad seal and a smooth seat surface. Seat design shall be removable and not have edges that will induce seal cutting, or wear at low flows. Main valve shaft shall be guided at top and bottom. Valves must have bubble tight shut off. Piston style valves will be unacceptable. The valve shall be a Watts Regulator Company Series 115-AN. Consult your local Watts agent for sizing and application help.

NSPC 2000 Section 10.8 Water Pressure Booster Systems - cont'd

10.8.5 Potable Water Inlet Control and Location. Potable water inlets to gravity tanks shall be controlled by a ball cock or other automatic supply valve so installed as to prevent the tank from overflowing. The inlet shall be terminated so as to provide an accepted air gap but in no case less than 4 inches above the overflow.

10.8.7 Low Pressure Cut-Off Required on Booster Pumps. When a booster pump is used on a water pressure booster system, a control shall be installed to prevent a reduction in pressure to values less than those required in this Chapter at any fixture connected to piping that supplies the pump section. See Section 10.8.1

10.8.8 Pressure Tanks - Vacuum Relief. All water pressure tanks shall be provided with a vacuum relief valve at the top of the tank which will operate up to a maximum water pressure of 200 psi and to maximum water temperatures of 200°F. The minimum size of such vacuum relief valves shall be 1/2 inch. See Section 10.8.1

Applicable Watts Product for NSPC Code Section 10.8.5:

Watts Series Governor 80

Ball Cock and Thermal Expansion Relief Valve (10", 11 1/2", 12 1/2")

Specifications:

The valve shall be tested and certified under ASSE Standard 1002 and meet IAPMO, and CSA requirements for anti-siphon ball cocks. All materials in contact with water shall be FDA approved under DVR-21-177-2600. The thermal expansion relief valve shall be standardly set at 80psi to meet existing codes and shall be non-adjustable. The valve shall be a Watts Regulator Company Series Governor 80.

Watts Series Governor 80®

Applicable Watts Product for NSPC Code Section 10.8.7:

Watts Series 116/1116

Water Pressure Reducing Valve (1 1/4" - 24")

Specifications:

Watts Series 116/1116 installed on a bypass line, main line pressure is accurately controlled by relief of excess pressure. Installed in the main line prevents upstream pressure from dropping below a preset minimum.

Watts Series 116

Body shall be ductile iron ANSI B16.1 fusion bond epoxy coated, inside and out. Diaphragm actuated by hydraulic pilot. Valves shall be appropriate for dead end service. All elastomers shall be of FDA approved materials. Seat shall be renewable 316 stainless steel. The disc shall be quad seal retained on three sides by the disc holder. Disc holder shall be configured to create a needle valve for smooth laminar flow over the seat when low flows are required. Disc/diaphragm assembly shall be top and bottom guided to assure proper disc/seat alignment. Raised sharp seats will not be accepted. The valve shall be a Watts Regulator Company Series 116/1116. Consult your local Watts agent for sizing and application help.

Applicable Watts Product for NSPC Code Section 10.8.8:

Watts Series N36

Vacuum Relief Valve (1/2", 3/4")

Specifications:

The valve shall be installed on domestic hot water supply tanks/ heaters/unit heaters/steam kettles as indicated on plans. The vacuum relief valve shall be ANSI Z21.22 rated and CSA certified. The vacuum relief valve shall have an all brass body and include a protective cap. The valve shall be a Watts Regulator Company Series N36.

Watts Series N36

NSPC 2000 Section 10.8 Water Pressure Booster Systems - cont'd

10.8.9 Pressure Tanks - Pressure Relief. All water pressure tanks shall be provided with approved pressure relief valves set at a pressure not in excess of the tank working pressure. See Figure 1.2.43 and Section 10.8.1

Applicable Watts Product for NSPC Code Section 10.8.9:

Watts Series 174A

ASME Water Pressure Relief Valve for Residential Applications (3/4" - 2")

Specifications:

An ASME Section IV certified pressure relief valve shall be installed on each pressure tank as noted. The relief valve shall be set to relieve at the maximum working pressure of the tank. The valve shall feature a raised seat and non-mechanical disc alignment. Working parts and spring shall be isolated from any discharge by a high temperature resistant material. Valve shall be a Watts Regulator Company Series 174A.

Watts Series 174A

NSPC 2000 Section 10.12 Water Supply Control Valves

10.12.2 Building Valve. The building water service shall be provided with a readily accessible gate valve with bleed or other full-way valve with bleed located inside the building near the point where the water service enters. When the building water service enters a crawl space, the building valve shall be readily accessible. Where there are two or more water services serving one building, a check valve shall be installed on each service in addition to the above valves. See Figure 10.12.1

Applicable Watts Product for NSPC Code Section 10.12.2:

Watts Series B6300/B6301

Bronze Full Port Ball Valves

Specifications:

Valves shall be 2-piece, full port construction, bronze ASTM B-584 body, chrome plated brass ASTM B-16 or B-124 ball, blow out proof stem, PTFE stem packing and stem thrust bearing. Valves shall be pressure rated to 400 psi (28 bars) WOG non-shock, and either threaded NPT or solder end connections. Valve shall be a Watts Regulator Company Series B-6300 threaded or B-6301 solder end.

Watts Series B6300

NSPC 2000 Section 10.12 Water Supply Control Valves - cont'd

10.12.3 Water Supply Tank Valve. A shutoff valve shall be provided at the outlet of any tank serving as a water supply source, either by gravity or pressure.

10.12.4 Valves in Dwelling Units

a. Individual fixture shutoff or stop valves shall be provided for water closets, lavatories, and kitchen sinks.
b. Shutoff valves shall be provided for each powder room or bathroom group unless all fixtures with the room or group have individual fixture shutoff or stop valves.
c. In a single dwelling unit, two bathrooms or powder rooms installed back-to-back or one directly above the other may be considered as a single group and shall be permitted to have one set of shutoff valves. If two such rooms are not piped as a single group, separate shutoff valves shall be provided for each room or group.
d. In multi-dwelling units, one or more shutoff valves shall be provided in each dwelling unit so that the water supply to any plumbing fixture or group of fixtures in that dwelling unit can be shut off without stopping the water supply to fixtures in other dwelling units. These valves shall be accessible in the dwelling unit that they control.

10.12.5 Riser Valves. Except within individual dwelling units, a shutoff valves(s) shall be provided for isolating each water supply riser serving fixtures on two or more floors.

Applicable Watts Product for NSPC Code Section 10.12.3 and 10.12.5:

Watts Series FBV-3

2 Piece, Full Port Brass Ball Valves (1/4" - 3")

Specifications:

Approved valves shall have bottom loaded, pressure retaining stems, virgin PTFE seats, and full port. Ball shall be chrome plated brass with brass stem. Valves shall be pressure rated at 600 psi WOG (non-shock), 125psi saturated steam. Each valve shall be tested in the opened and closed position by the manufacturer. Valve must conform to MSS-SP-110. The valve shall be a Watts Regulator Company Series FBV-3 (threaded NPT) or FBVS-3 (solder).

Watts Series FBV-3

Applicable Watts Product for NSPC Code Section 10.12.3 and 10.12.5:

Watts Series B-6080

2 Piece, Full Port Bronze Ball Valves (1/2" - 2")

Specifications:

Valves shall be 2-piece, full port construction, bronze ASTM B-584 body, electroless nickel plated ASTM B-16 or B-124 brass ball, blow-out proof ASTM B-16 brass stem, Virgin PTFE seats, PTFE stem packing and stem thrust bearing. Valves shall be pressure rated to 150psi (8.6 bars) WSP, 600psi (28 bars) WOG, and either threaded NPT or solder end connections. Valves shall be manufactured to the MSS-SP-110 standard. The valve shall be a Watts Regulator Company B-6080 (threaded) or B-6081 (solder) end.

Watts Series B-6080

Applicable Watts Product for NSPC Code Section 10.12.3 and 10.12.5:

Watts Series B-6800

3 Piece, Full Port Brass Ball Valves (1/4" - 2")

Specifications:

Valves shall be 3-piece, full port, in-line maintenance type, constructed of ASTM B-124 brass body, brass ASTM B-16, or B-124 electroless nickel-plated ball, reinforced Duraf seats, reinforced PTFE stem packing and stem thrust bearing, ASTM B-16 brass blow-out proof stem. Valves shall be pressure rated to 150psi (10 bars) WSP, 600psi (41 bars, WOG 1/4" - 1" (8-25 mm), 400 psi (28 bars) WOG 1 1/4" - 2" (32-50 mm); and have either threaded NPT or solder end connections. Valves shall be manufactured to MSS-SP-110. The valve shall be a Watts Regulator Company B-6800 (threaded) or B-6801 (solder) end.

Watts Series B-6800

NSPC 2000 Section 10.12 Water Supply Control Valves - cont'd

10.12.6 Individual Fixture Valves. In a building used or intended to be used for other than dwelling purposes, the water distribution pipe to each fixture or other piece of equipment shall be provided with a valve or fixture stop to shut off the water to the fixture or to the room in which it is located. These valves shall be readily accessible. Sill cocks and wall hydrants shall be separately controlled by a valve inside the building.

Applicable Watts Product for NSPC Code Section 10.12.6:

Watts Series KwikStop

Quarter-turn Water Supply Stops

Specifications:

A water supply stop shall be installed where noted to turn on and off the water supply to fixtures. Stop should use ball valve style construction for quick "on" and "off" control. Stop should have large handle for positive grip control and PTFE seats for sure sealing. Stop should be made from chrome-plated brass and comply with NSF 61 Section 9. Stop shall be a Watts Regulator Company Series KwikStop.

Watts Series KwikStop

NSPC 2000 Section 10.14

10.14.6 Excessive Pressures

a. Approved pressure reducing valves shall be complying with ASNI/ASSE 1003 required to limit the water supply pressure at any fixture appliance, appurtenance, or outlet to not more than 80psi under no-flow conditions.

b. The requirement of Section 10.14.6.a above shall not prohibit supply pressures higher than 80psi to water pressure booster systems under Section 10.14.4 or in high pressure distribution systems, provided that the pressure at the fixtures served is subsequently reduced to 80psi maximum. Where operating water pressures exceed 80psi, the working pressure rating of materials and equipment shall be suitable for the maximum pressure that may be encountered, including temporary increases or surges.

Where pressure reducing valves are installed and the downstream piping is not rated for the maximum upstream pressure, a pressure relief valve shall be installed downstream from the pressure reducing valve. The relief valve shall be set not higher than the working pressure rating of the downstream piping and sized for not less than the flow capacity of the pressure reducing valve. Relief valves shall discharge in accordance with Sections 10.16.6a, b, c, and d.

Applicable Watts Product for NSPC Code Section 10.14.6:

Watts Series 223S

Super Capacity Water Pressure Regulators ($^1/_2$" - 3")

Specifications:

A pressure regulating valve shall be installed where noted to reduce supply pressures to 50psi or less. The installation shall include a strainer on the inlet side of the regulator. The regulator shall feature a removable seat disc and disc holder that can be removed in-line without special tools. The valve diaphragm shall resist hot or cold water temperature damage. The spring cage shall be sealed for below grade service. Adjusting screw and cage screws shall be corrosion resistant. Approved valves shall comply with ASSE 1003. The valve shall be a Watts Regulator Company Series 223S.

Watts Series 223

NSPC 2000 Section 10.14 - cont'd

10.14.6 Excessive Pressures - cont'd

10.14.7 Water Hammer

a. Approved water hammer arresters, complying with ANSI/ASSE 1010, shall be installed on water distribution systems in which quick closing valves are installed. (Such devices shall not be required on single handle mixing valve installations, residential washing machines or residential dishwashers.)

b. Water hammer arrestors shall be placed as close as possible to the quick acting valve, at the end of long piping runs, or near batteries of fixtures.

c. Arrestors shall be accessible for replacement.

Applicable Watts Product for NSPC Code Section 10.14.6:

Watts Series 25AUB

Water Pressure Reducing Valves (1/2" - 2")

Specifications:

Watts Series 25AUB

When the supply main pressure exceeds 60psi (413 kPa), an approved water pressure reducing valve and strainer shall be installed on the water service pipe near its entrance to the building to reduce the water pressure to 50psi (345 kPa) or lower. Sill cocks and outside wall hydrants may be left on full main pressure at the option of the owner. For service water systems up to and including 2" (50mm) provision shall be made to permit the bypass flow of water around the valve back into the supply main when pressures, due to thermal expansion on the outlet side of the valve, exceed the pressure in the supply main. Pressure reducing valves with built-in bypass check valves will be acceptable. Approved valves shall comply with ASSE 1003. The valve shall be a Watts Regulator Company Series 25AUB.

Applicable Watts Product for NSPC Code Section 10.14.6:

Watts Series U5B

Water Pressure Reducing Valves (1/2" - 2")

Specifications:

Watts Series U5B

When supply main pressure exceeds 60psi (413 kPa), an approved water pressure reducing valve and strainer shall be installed on the water service pipe near its entrance to the building to reduce the water pressure to 50psi (345 kPa) or lower. Sill cocks and outside wall hydrants may be left on full main pressure at the option of the owner. For service water systems up to and including 2" (50mm), provision shall be made to permit the bypass flow of water around the valve back into the main when pressures, due to thermal expansion on the outlet side of the valve, exceed the pressure in the main. Pressure reducing valves with built-in bypass check valves will be acceptable. Approved valves shall comply fully with ASSE Standard No. 1003. The valve shall be a Watts Regulator Company Series U5B.

Applicable Watts Product for NSPC Code Section 10.14.7:

Watts Series 15

Water Hammer Arrestors (1/2" - 2")

Specifications:

Watts Series 15

Water hammer arrestors shall be Watts Regulator Company Series 15. They must be ASSE Standard 1010 approved, ANSI A112.26.1M approved, P.D.I. WH201 approved and certified.

Construction shall be: Bodies - Hard drawn copper with custom internal mirror finish.
Piston - Threaded adapter and cap machined of free cutting brass.
Seals - O-Rings made of EPDM • **Seal Lubricant** - Dow-Corning silicone compound #111, FDA approved. • **Operating Pressure -** 150 psi • **Temperature Range -** 33°F - 180°F.

Valves must be able to operate properly in any position and be factory pre-charged, permanently capped and epoxy sealed.

NSPC 2000 Section 10.15 - cont'd

10.15.7 Thermal Expansion Control. Where a backflow prevention device, check valve or water pressure regulator is installed serving water heating equipment such that a closed system is created, a device for controlling thermal expansion shall be installed.

EXCEPTION: Instantaneous water heaters.

Applicable Watts Product for NSPC Code Section 10.15.7:

Watts Series ILT

In-Line Thermal Expansion Tank

Specifications:

The potable water expansion tank shall be of steel construction. It shall be of flow through design. It shall have a Butyl diaphragm separating the air chamber from the water containment chamber. Inlet and outlet connectors shall be union thread or sweat. Materials of manufacture for diaphragm shall be FDA approved. The potable water expansion tank shall be a Watts Regulator Company Series ILT.

Watts Series ILT

Applicable Watts Product for NSPC Code Section 10.15.7:

Watts Series DET

Thermal Expansion Tank

Specifications:

The potable water expansion tank shall be of drawn steel construction. It shall have a Butyl diaphragm separating the air chamber from the water containment chamber. Inlet connector shall be brass (Model DET-35: Stainless Steel). Materials of manufacture for the diaphragm shall be FDA approved. The potable water expansion tank shall be a Watts Regulator Company Series DET.

Watts Series DET

Applicable Watts Product for NSPC Code Section 10.15.7:

Watts Series PET

Thermal Expansion Tank

Specifications:

The potable water expansion tank shall be of drawn steel construction and include a thermally bonded epoxy liner in the water containing area. It shall have a Butyl diaphragm separating the air chamber from the water containment chamber. Inlet connector shall be stainless steel. Materials of manufacture for the liner and diaphragm shall be FDA approved. The potable water expansion tank shall be a Watts Regulator Company Series PET.

Watts Series PET

NSPC 2000 Section 10.15 - cont'd

10.15.10 Water Heaters Used for Space Heating

a. Water heaters used for space heating shall be listed for such use.
b. Piping and components connected to a water heater for space heating application shall be suitable for use with potable water.
c. Where required, a water temperature control valve shall be installed in every combination water heating-space heating system application to limit domestic hot water temperature to 140°F.

Applicable Watts Product for NSPC Code Section 10.15.10:

WATTS SERIES 1170/L1170

Thermostatic Mixing Valve ($^1/_2$" - 1")

Specifications:

The valve shall be installed on water heating equipment to provide tempered water to supply piping. Valve shall have a bronze/brass body, include integral check valves and operate so that the thermostat controls the cold and hot water ports. The valve shall be provided with solder (-US) or threaded (-UT) connections. Valve shall be ASSE Standard 1017 Listed. The valve shall be a Watts Regulator Company Series 1170/L1170.

Watts Series 1170/L1170

NSPC 2000 Section 10.16 - Safety Devices for Pressure Vessels

10.16.1 Tank Protection. Pressure vessels used for heating water or storing water at pressures above atmospheric shall be protected by approved safety devices in accordance with one of the following methods:

a. A separate pressure relief valve and a separate temperature relief valve; or
b. A combination pressure and temperature relief valve; or
c. Either "a" or "b" above and an energy cut-off device.
d. Tank construction conforming to a standard that does not require a temperature or pressure safety or relief valve.

10.16.2 Pressure Relief Valves. Pressure relief valves shall comply with the applicable codes, standards, and ratings of ASME, ANSI, and AGA. The valves shall have a relief rating adequate to meet the pressure conditions in the equipment served, and shall be installed either directly in a top tank tapping or in the hot or cold outlet line close to the tank. There shall be no shutoff valve between the pressure relief valve and the tank. The pressure relief valve shall be set to open at not less than 25 PSI above the street main pressure or not less than 25 PSI above the setting of any house water pressure regulating valve. The setting shall not exceed the tank rated working pressure.

NOTE: THE INSTALLATION OF A SHUT-OFF VALVE BETWEEN THE TANK AND THE RELIEF VALVE NEGATES THE SAFETY PROTECTION OF THE VALVE. AT NO TIME SHALL A VALVE BE INSTALLED SUCH THAT IT WILL ISOLATE ANY TEMPERATURE OR PRESSURE RELIEF VALVE.

10.16.4 Combination Pressure-Temperature Relief Valves. Combination pressure-temperature relief valves shall comply with all the requirements of the separate pressure and temperature relief valves. (See Section 3.3.10.) See Sections 10.16.2 and 10.16.3

Applicable Watts Product for NSPC Code Section 10.16.1, 10.16.2 and 10.16.4:

Watts Series 100XL

Temperature and Pressure Relief Valves (3/4")

Specifications:

Each hot water storage heater shall be equipped with an CSA and A.S.M.E. rated automatic temperature and pressure relief valve to protect the heater from excessive pressure and temperature. The device shall be ANSI Z21.22 certified. The BTU discharge capacity of the device shall be in excess of the BTU input rating of the heater. The valve shall be a Watts Regulator Company Series 100XL.

Watts Series 100XL

Applicable Watts Products for NSPC Code Section 10.16.1, 10.16.2 and 10.16.4:

Watts Series 40, 140, 240 & 340

Commercial Capacity T&P Relief Valves (3/4" – 2")

Specifications:

Each hot water storage heater shall be equipped with an automatic temperature and pressure relief valve to protect the heater from excessive pressure and excessive temperature. The device shall be certified as meeting the requirements of ASME low pressure heating boiler code and ANSI Z21.22. The BTU discharge capacity of the device shall be in excess of the BTU input rating of the heater. The valve shall be a Watts Regulator Company Series 40, 140, 240 and 340.

Watts Series 40, 140, 240 & 340

NSPC 2000 Section 10.16 - Safety Devices for Pressure Vessels - cont'd

10.16.6 Relief Valve Discharge Piping

a. Piping from the outlet of relief valves to the point of disposal shall be of a material approved for potable water (see Section 3.4). Discharge pipes from temperature relief valves or combination temperature-pressure relief valves shall be listed in Table 3.4 for hot water use. EXCEPTION: Any pipe that is rated to convey water at 210°F to an open discharge, including black steel pipe.

b. There shall be no shut-off valve, check valve or other restricting device between a relief valve and the pressure vessel or piping system being protected.

c. The discharge pipe shall be no smaller than the outlet size of its relief valve and shall extend to a point of disposal without valves, traps or rises that would prevent the relief valve from draining by gravity. Discharge end of the pipe shall not be threaded.

d. An air gap shall be provided where relief valves discharge into an indirect waste pipe, floor drain, trench drain, service sink, mop basin, laundry sink, standpipe or other approved receptor. The minimum size of fixture drains or waste pipes that receive the discharge from relief valves shall be as indicated in Table 10.16.6.

e. Where relief valves discharge to the floor, the discharge pipe shall terminate not more than 6 inches nor less than 2 inches above the floor.

f. Where drip pans are installed under water heaters, the relief valve may discharge into the pan provided that all of the following conditions are met:

(1) The pan has an indirect waste pipe equal to or larger than the relief valve outlet pipe size,

(2) The pan is of sufficient size to provide a clear space between the side of the heater and the edge of the pan below the discharge pipe that is not less than 2 times the pipe size,

(3) The discharge pipe terminates not more than 4 inches or less than 2 inches above the top of the pan, and

(4) The water heater is elevated in the pan so that the bottom of the heater is higher than the top of the drain pan.

g. If the point of disposal is outside the room or space in which the relief valve is located, an indirect gravity drain shall be provided from the room or space to the point of disposal. Indirect waste pipes shall be sized according to Table 10.16.6 and shall be of a material approved for potable water, sanitary drainage or storm drainage (see Tables 3.4, 3.5, and 3.7). A visible air gap shall be provided in the room or space in which the relief valve is located.

EXCEPTION: Where water heaters are located above ceilings, the relief valve discharge pipe shall extend to a point of disposal or indirect waste that is readily observable in an area below the heater.

h. Where two or more relief valves serving independent systems are located in the same area, each shall be discharged separately. Where such relief valves for independent systems are discharged into a common gravity drain or indirect waste pipe, the drain or waste pipe shall be sized according to the largest discharge pipe served.

Applicable Watts Products for NSPC Code Section 10.16.6:

Watts Models 100DT & 100DT-A

Temperature and Pressure Relief Valve Drain Lines

Specifications:

Watts Models 100DT and 100DT-A

Residential water heaters having relief valves with 3/4" outlets shall be equipped with a relief valve drain line. Drain line shall be constructed to conform with AGA ER48-22 and shall meet the requirements of the Department of Housing and Urban Development. The drain line shall be constructed so as to be able to withstand inlet steam pressure of 15psi or 250°F. Provisions shall be made so that discharge from the drain line will not cause personal injury or property damage. Temperature and pressure drain line shall be a Watts Regulator Company model 100DT or 100DT-A.

NSPC 2000 Section 10.16 - Safety Devices for Pressure Vessels - cont'd

10.16.7 Vacuum Relief Valves. Where a hot water storage tank or an indirect water heater is located at an elevation above the fixture outlets in the hot water system, a vacuum relief valve shall be installed on the storage tank or heater. See Figure 10.16.7

Applicable Watts Product for NSPC Code Section 10.16.7:

Watts Series N36

Vacuum Relief Valve ($^1/_2$", $^3/_4$")

Specifications:

The valve shall be installed on domestic hot water supply tanks/ heaters/unit heaters/steam kettles as indicated on plans. The vacuum relief valve shall be ANSI Z21.22 rated and CSA certified. The vacuum relief valve shall have an all brass body and include a protective cap. The valve shall be a Watts Regulator Company Series N36.

Watts Series N36

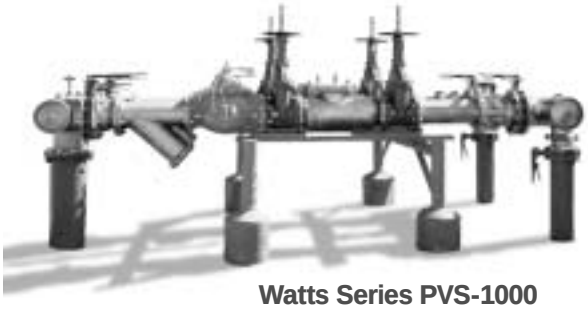
NSPC 2000 Section 14.2 Water Service

Where required by the Administrative Authority, hospitals and similar health care facilities shall have dual water service lines to maintain a water supply in the event of a water main failure. Where possible, the service pipelines shall be connected to different water mains so that a single water main break can be isolated and repaired without shutting off all water service to the facility.

Watts Series PVS-1000 (Pre-Engineered Valve Stations)

Specifications:

A pre-engineered valve station shall be installed where indicated on the plans to provide uninterrupted flow to a building or facility. Valve station may include backflow preventers, meters, pressure regulators, automatic control valves, headers, single checks and shutoff valves. The pre-engineered valve station shall be in a Watts Series PVS-1000.



Watts Series PVS-1000

NSPC 2000 Section 14.7 Cross Connection and Backflow Prevention

a. Backflow prevention shall be in accordance with Section 10.5.

b. Vacuum breakers for bedpan washers shall be not less than 5 feet above the floor.

Applicable Watts Product for NSPC Code Section 14.7:

Watts Series 288A

Hot or Cold Water Anti-Siphon Vacuum Breaker ($^{1}/_{4}$" - 3")

Specifications:

An atmospheric-type anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the back-siphonage of contaminated water. This device is not to be used under continuous pressure or where there is a possibility that a back-pressure condition may develop. The device shall meet the requirements of ASSE Standard 1001, ANSI A112.1.1 and CSA B64, and shall be a Watts Regulator Company Series 288A.

Watts Series 288A

NSPC 2000 Section 14.9 Local Vents and Stacks for Clinical Sinks and Bedpan Washers

14.9.5 Trap Priming. The waste trap required under Section 14.9.4 shall be primed by at least one clinical sink or bedpan washer on each floor served by the local vent stack. A priming line not less than 1/4" OD size shall be extended from the discharge or fixture-side of the vacuum breaker protecting the fixture water supply to the local vent stack. A trap having not less than a 3-inch water seal shall be provided in the priming line. The line shall prime the trap at the base of the local vent stack each time that a fixture is flushed.

Applicable Watts Product for NSPC Code Section 14.9.5:

Watts Series A200

Flow-Through Trap Primer (1/2")

Specifications:

A trap primer shall be installed in plumbing systems to prevent floor drain traps from losing their water seal by evaporation. Maintaining the water seal will prevent the backflow of sewer gas into the buildings or rooms where the traps are installed. Trap primers are specified in various plumbing codes such as IAPMO, Southern Standard Building Code, National Standard Plumbing Code and many state and local plumbing codes in U.S.A. and Canada. The device shall meet the requirements of ASSE Standard 1018. The trap primer shall be a Watts Regulator Company Series A200T (threaded), or A200S (solder).

Watts Series A200

NSPC 2000 Section 14.13 Aspirators

Provisions for aspirators or other water-supplied suction devices shall be installed only with the specific approval of the Administrative Authority. Where aspirators are used for removing body fluids, they shall include a collection bottle or similar fluid trap. Aspirators shall indirectly discharge to the sanitary drainage system through an air gap, in accordance with Chapter 9. The potable water supply to an aspirator shall be protected by a vacuum breaker or equivalent, in accordance with Sections 14.7 and 10.5.3.

See Backflow Prevention Guide in back of this publication for applicable products.

For protection of The Potable Water Supply

This “guide” is offered to simplify the selection of backflow assemblies and to ensure that the most suitable assembly is applied to protect against cross connections based on the degree of hazard and the comparative cost.

Degree of hazard is determined by whether the substance in the non-potable system is “toxic” (treated boiler water etc.), or “non-toxic” (sugar, soda pop etc.). Since this “degree of hazard” subject is often a matter of code interpretation, we offer this data as a helpful guide and suggest you consult your local code authority. However, it is based on a consensus of plumbing and health codes surveyed throughout the country, and we hope it will be useful as a condensation of this very broad subject.

Watts has the most extensive line of products to provide you with alternate choices to meet a specific condition. We also have conveniently located sales engineering offices throughout the country, that are available to assist you in cross connection control programs and educational meetings. Thus you can depend on both the Watts line and the Watts organization.

Installation	Watts Recommended Products	Governing Standards
Air Compressors	Air Gap	
Air Conditioning	909/009/995	ASSE Std 1013
Air Conditioned Chill Water	909/009/995	ASSE Std 1013
Air Conditioned Condenser Water	909/009/995	ASSE Std 1013
Air Conditioned Cooling Towers	909/009/995	ASSE Std 1013
Air Washers	Air Gap	
Aspirator, Medical	288A/909/009/995	ASSE Std 1013
Aspirator, Herbicide & Root Feeders	#8	ASSE Std 1011
Autoclave & Sterilizer	288A	ASSE Std /1011/1001
Autopsy Tables	288A/008	ASSE Std 1001/1020/1056
	909/009/995	ASSE Std 1013
Baptismal Fount	9D	ASSE Std 1012
Bathtub Below Rim Filler	9D	ASSE Std 1012
Bedpan Washer, Flushing Rim	288A/008/800	ASSE Std 1001/1020/1056
Beverage Dispensing Machines	SD3	ASSE Std 1022
Bidet	288A/388ASC	ASSE Std 1001
Boiler, Residential Feed Line	9D	ASSE Std 1012
Boiler, Industrial Feed Line	909/009/995	ASSE Std 1013
Brine Tank	Air Gap	
Bottle Washer*	288A or 008/800	ASSE Std 1001/1020/1056
Carbonated Beverage Vending Machine	SD3	ASSE Std 1022
Chemical Feeder Tanks	909/009/995	ASSE Std 1013
Chiller Tanks	9D	ASSE Std 1012
Chlorinator	9D	ASSE Std 1012
Coffee Urn	288A/388ASC	ASSE Std 1001
Cooking Kettles	288A/388ASC	ASSE Std 1001
Condensate Tanks	Air Gap	
Cuspidor, Dental	288A/388ASC	ASSE Std 1001
Dairy Equipment*	288A/008/800	ASSE Std 1001/1020/1056
Degreasing Equipment	909,009/995	ASSE Std 1013
Detergent Dispenser*	288A/008	ASSE Std 1001/1056
Developing Tanks*, Photo	288A/008	ASSE Std 1001/1056
Digesters,Hospital	909/009/995	ASSE Std 1013
Commercial Dishwasher*	288A/008	ASSE Std 1001/1056
Drinking Fountain	Air Gap	
Dye Vats & Tanks	909/009/995	ASSE Std 1013
Etching Tanks	909/009/995	ASSE Std 1013
Fountain, Livestock Drinking	9D	ASSE Std 1012
Fountain, Ornamental	909/009/995	ASSE Std 1013
Garbage Can Washer	9D	ASSE Std 1012
Garbage Disposers	288A	ASSE Std 1001
Hose Faucets	8/NF8/8FR	ASSE Std 1011

Installation	Watts Recommended Products	Governing Standards
Humidifier Tank & Boxes	288A	ASSE Std 1001
Hydrotherapy Baths	288A/388ASC	ASSE Std 1001
Irrigation System*	909/009/995	ASSE Std 1013/1020
Janitor Closets	8	ASSE Std 1011
Laundry Machine, Hospital	909/009/995	ASSE Std 1013
Lavatory	Air Gap	
Lawn Sprinkler *	288A/909/009/995/800	ASSE Std 1001/1013/1020
Lawn Sprinkler, Chemical Injection	909/009/995	ASSE Std 1013
Main Line (Potable Water)	909/009/995	ASSE Std 1013
Make-Up Tank	9D	ASSE Std 1012
Marina, Boat Connections	8/7/Cu7	ASSE Std 1011/1024
Mobile Homes	7/Cu7	ASSE Std 1024
Pipette Washer	288A	ASSE Std 1001
Photo Lab Sinks	288A	ASSE Std 1001
Potato Peeler	Air Gap	
Processing Tanks	909/009/995	ASSE Std 1013
Pump Prime Lines	9D	ASSE Std 1012
Pump, Water Oper Eject	9D	ASSE Std 1012
Recirculated Water	909/009/995	ASSE Std 1013
Residential Supply Service	7/Cu7	ASSE Std 1024
Reclaim Pit	288A	ASSE Std 1001
Serrated Faucets (Lab)	NLF9	ASSE Std 1035
Sewer Flushing Manhole	288A	ASSE Std 1001
Shampoo Basin Hose Rinse	288A or N9CD	ASSE Std 1001/1052
Sinks, Wash-Up	Air Gap	
Sitz Bath	288A	ASSE Std 1001
Sizing Vats & Boxes	709/007/775	ASSE Std 1015
Soap Mixing Tank	288A	ASSE Std 1001
Solution Tanks	909/009/995	ASSE Std 1013
Sprinkler System, Fire Protection**	709/709DCDA/909/909RPDA	ASSE Std 1015/1048/1013/1047
Starch Tanks	709/007/775	ASSE Std 1015
Steam Cleaner Connection	8	ASSE Std 1011
Steam Table	288A/388ASC	ASSE Std 1001
Stills*	288A/008	ASSE Std 1001/1056
Swimming Pool,Commercial	709/007/775	ASSE Std 1015
Telephone Showers	S8	ASSE Std 1011
Trap Primer	A200	ASSE Std 1018
Ultrasonic Cleaner	288A	ASSE Std 1001
Urinal, Trough	9D	ASSE Std 1012
Wall Hydrants	8/NF8/8FR	ASSE Std 1011
Wall Hydrants, Frost Free	NF8/8FR	ASSE Std 1011
Water Treatment Tanks	709/007/775	ASSE Std 1015
Water Well Secondary System	909/009/995	ASSE Std 1013

* Indicates the possibility of continuous pressure and or back pressure. Use products meeting the following standards if either condition is present. ASSE Std 1013 and 1056.

** Indicates anti-freeze is present in the system. Use products meeting ASSE 1047 or 1013.

Note: all ASSE standards are now listed as ANSI/ASSE standards.

Notes

For Technical Assistance Call Your Authorized Watts Agent.

			Telephone #	Fax #
	HEADQUARTERS: Watts Regulator Company	815 Chestnut St., North Andover, MA 01845-6098 U.S.A.	978 688-1811	978 794-1848
North East	Vernon Bitzer Associates, Inc.	980 Thomas Drive, Warminster, PA 18974	215 443-7500	215 443-7573
	Edwards, Platt & Deely, Inc.	271 Royal Ave., Hawthorne, NJ 07506	973 427-2898	973 427-4246
	Edwards, Platt & Deely, Inc.	368 Wyandanch Ave., North Babylon, NY 11703	631 253-0600	631 253-0303
	J. B. O'Connor Company, Inc.	P.O. Box 12927, Pittsburgh, PA 15241	724 745-5300	724 745-7420
	The Joyce Agency, Inc.	8442 Alban Rd., Springfield, VA 22150	703 866-3111	703 866-2332
	W. P. Haney Co., Inc.	51 Norfolk Ave., South Easton, MA 02375	508 238-2030	508 238-8353
	WMS Sales, Inc. (Main office)	9580 County Rd., Clarence Center, NY 14032	716 741-9575	716 741-4810
South East	Billingsley & Associates, Inc.	2728 Crestview Ave., Kenner, LA 70062-4989	504 602-8100	504 602-8106
	Billingsley & Associates, Inc.	478 Cheyenne Lane, Madison, MS 39110	601 856-7565	601 856-8390
	Francisco J. Ortiz & Co., Inc.	Charlyn Industrial Pk., Road 190 KM1.9 - Lot #8, Carolina, Puerto Rico 00983	787 769-0085	787 750-5120
	Mid-America Marketing, Inc.	2776 B.M. Montgomery St., Birmingham, AL 35209	205 879-3469	205 870-5027
	Mid-America Marketing, Inc.	1364 Foster Avenue, Nashville, TN 37210	615 259-9944	615 259-5111
	Mid-America Marketing, Inc.	5466 Old Hwy. 78, Memphis, TN 38118	901 795-0045	901 795-0394
	RMI	Glenfield Bus. Ctr., 2535 Mechanicsville Tpk., Richmond, VA 23223	804 643-7355	804 643-7380
	Smith & Stevenson Co., Inc.	4935 Chastain Ave., Charlotte, NC 28217	704 525-3388	704 525-6749
	Spotswood Associates, Inc.	6235 Atlantic Blvd., Norcross, GA 30071	770 447-1227	770 263-6899
	Target Marketing Enterprises, Inc.	118 West Grant St., Building M, Orlando, FL 32806	407 245-7838	407 245-7833
South Central	Hugh M. Cunningham, Inc.	13755 Benchmark, Dallas, TX 75234	972 888-3800	972 888-3838
	Mack McClain & Associates	11132 South Towne Square, Suite 202, St. Louis, MO 63123	314 894-8188	314 894-8388
	Mack McClain & Associates, Inc.	1537 Ohio St., Des Moines, IA 50314	515 288-0184	515 288-5049
	Mack McClain & Associates, Inc.	15090 West 116th St., Olathe, KS 66062	913 339-6677	913 339-9518
	Phoenix Marketing, Ltd.	2416 Candelaria N.E., Albuquerque, NM 87107	505 883-7100	505 883-7101
	Pro-Spec, Inc.	P.O. Box 472226, Tulsa, OK 74147-2226	918 461-0066	918 461-0105
North Central	Associated Independent Marketing	1606 Commerce Dr., Sun Prairie, WI 53590	608 837-5005	608 837-2368
	Dave Watson Associates	1325 West Beecher, Adrian, MI 49221	517 263-8988	517 263-2328
	Disney-McLane-Woodcock, Inc.	428 McGregor Ave., Cincinnati, OH 45206	800 542-1682	877 476-1682
	Disney-McLane-Woodcock, Inc.	17610 S. Waterloo Rd., Cleveland, OH 44119	216 486-1010	216 486-2860
	Mid-Continent Marketing Services Ltd.	1724 Armitage Ct., Addison, IL 60101	630 953-1211	630 953-1067
South West	Delco Sales, Inc.	1930 Raymer Ave., Fullerton, CA 92833	714 888-2444	714 888-2448
	P I R Sales, Inc.	3050 North San Marcos Place, Chandler, AZ 85225	480 892-6000	480 892-6096
	Preferred Sales	31177 Wiegman Road, Hayward, CA 94544	510 487-9755	510 476-1595
North West	Delco Sales, Inc.	111 Sand Island Access Rd., Unit I-10, Honolulu, HI 96819	808 842-7900	808 842-9265
	Fanning & Associates, Inc.	6765 Franklin St., Denver, CO 80229-7111	303 289-4191	303 286-9069
	Hollabaugh Brothers & Associates	6915 South 194th St., Kent, WA 98032	253 867-5040	253 867-5055
	Hollabaugh Brothers & Associates	3028 S.E. 17th Ave., Portland, OR 97202	503 238-0313	503 235-2824
	R. E. Fitzpatrick Sales, Inc.	4109 West Nike Dr. (8250 South), West Jordan, UT 84088	801 282-0700	801 282-0600
	Soderholm & Associates, Inc.	7150 143rd Ave. N.W., Anoka, MN 55303	763 427-9635	763 427-5665
CANADA	Watts Industries (Canada) Inc. (Watts Regulator Co. Division)	5435 North Service Road, Burlington, Ontario L7L 5H7	905 332-4090	905 332-7068
	GTA Sales Team.	Greater Toronto Area	888 208-8927	888 479-2887
	Hydro-Mechanical Sales, Ltd.	3700 Joseph Howe Dr., Ste. 1 Halifax, Nova Scotia B3L 4H7	902 443-2274	902 443-2275
	Hydro-Mechanical Sales, Ltd.	297 Collishaw St., Ste. 7 (shipping) Moncton, New Brunswick E1C 9R2	506 859-1107	506 859-2424
	Hydro-Mechanical Sales, Ltd.	85 Tolt Rd., St. Phillips, Newfoundland A1B 3M7	709 895-0090	709 895-0091
	Le Groupe B.G.T., Inc.	2800 Rue Dalton Ste. 3, Ste-Foy, Quebec G1P 3S4	418 657-2800	418 657-2700
	Le Groupe B.G.T., Inc.	140 Rue Merizzi, Ville St. Laurent, Quebec H4T 1S4	514 341-9010	514 341-4464
	Walmar Mechanical Sales	24 Gurdwara Rd., Nepean, Ontario K2E 8B5	613 225-9774	613 225-0673
	Mar-Win Agencies, Ltd.	1123 Empress St., Winnipeg, Manitoba R3E 3H1	204 775-8194	204 786-8016
	Palser Enterprises, Ltd.	1885 Blue Heron Dr., #4, London, Ontario N6H 5L9	519 471-9382	519 471-1049
	Northern Mechanical Sales	P.O. Box 280 (mailing) 163 Pine St. (shipping), Garson, Ontario P3L 1S6	705 693-2715	705 693-4394
	RAM Mechanical Marketing	441 Quebec St., Regina, Saskatchewan S4R 1K8	306 525-1986	306 525-0809
	RAM Mechanical Marketing	2615-B Wentz Avenue, Saskatoon, Saskatchewan S7K 5J1	306 244-6622	306 244-0807
	Con-Cur West Marketing, Inc.	#109-42 Fawcett Rd., Coquitlam, British Columbia V3K 6X9	604 540-5088	604 540-5084
	D.C. Sales, Ltd.	10-6130 4th St. S.E., Calgary, Alberta T2H 2A6	403 253-6808	403 259-8331
	D.C. Sales, Ltd.	11420 142 Street, Edmonton, Alberta T5M 1V1	780 496-9495	780 496-9621
0238	**EXPORT Hdqtrs.:** Watts Regulator Co.	815 Chestnut St., North Andover, MA 01845-6098 U.S.A.	978 688-1811	978 794-1848

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