Watts Regulator Examines Product Applications for

The 2000 National Standard Plumbing Code
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 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

Chapter 7 Plumbing Fixtures, Fixture Fittings and Plumbing Appliances
Section 7.7 Bidets ................................................. 4
Section 7.2 Backflow Prevention ............................. 4
Section 7.11 Sinks .............................................. 5
Section 7.15 Sink Faucets ..................................... 5
Section 7.18 Special Installations ........................... 6
Section 7.18.1 Protection of Water Supply .................. 6
Section 7.19 Flushing Devices for Water Closets and Urinals .......... 6

Chapter 10 Water Supply and Distribution
Section 10.4 Protection of Potable Water Supply .................. 7
Section 10.4.3 Cross Connection Control ...................... 7
Section 10.4.4 Private Supplies ................................ 7
Section 10.5 Backflow Prevention ................................ 8
Section 10.5.3 Required Backflow Prevention Devices ............... 8
Section 10.5.5 Installation of Backflow Preventers ................. 9
Section 10.5.6 Maintenance and Testing of Backflow Prevention Devices .......... 10
Section 10.5.8 Connections to Carbonated Beverage Dispensers ........ 11
Section 10.5.9 Protection from Fire Systems....................... 12,13
Section 10.5.10 Protection from Lawn Sprinklers and Irrigation Systems .... 14,15
Section 10.5.13 Protection for Special Equipment .................. 16

Section 10.8 Water Pressure Booster Systems ................. 16
Section 10.8.1 Water Pressure Booster Systems Required .......... 16
Section 10.8.5 Potable Water Inlet Control and Location .............. 17
Section 10.8.7 Low Pressure Cut-off Required on Booster Pumps .......... 17
Section 10.8.8 Pressure Tanks - Vacuum Relief ..................... 17
Section 10.8.9 Pressure Tanks - Pressure Relief ................... 18

Section 10.12 Water Supply Control Valves ..................... 18
Section 10.12.3 Building Valve ................................ 18
Section 10.12.4 Water Supply Tank Valve ......................... 19
Section 10.12.5 Risers Valves ................................ 19
Section 10.12.6 Individual Fixture Valves ......................... 20

Section 10.14 Minimum Requirements for Water Distribution Systems .......... 20
Section 10.14.6 Excessive Pressures ........................... 20,21
Section 10.14.7 Water Hammer .................................. 21

Section 10.15 Hot Water ...................................... 22
Section 10.15.7 Thermal Expansion Control ....................... 23
Section 10.15.10 Water Heaters Used for Space Heating ............... 23
Section 10.16  Safety Devices for Pressure Vessels ................................. 24
  10.16.1  Tank Protection ................................................................. 24
  10.16.2  Pressure Relief Valves ..................................................... 24
  10.16.4  Combination Pressure-Temperature Relief Valves .......................... 24
  10.16.6  Relief Valve Discharge Piping ............................................ 25
  10.16.7  Vacuum Relief Valves .................................................... 26

Chapter 14  Special Requirements for Healthcare Facilities

Section 14.2  Water Service .............................................................. 27
Section 14.7  Cross Connection Control and Backflow Prevention .................. 27
Section 14.9  Local Vents and Stacks for Clinical Sinks and Bedpan Washers .... 28
  14.9.5  Trap Priming ................................................................. 28
Section 14.13  Aspirators ................................................................. 28

Backflow Prevention Guide .............................................................. 29, 30

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.

National Standard Plumbing Code/2000. Copyright ©2000 by Plumbing-Heating-Cooling Contractors-National Association, Falls Church, Virginia, 2000 National Standard Plumbing Code. Reproduced with permission. All rights reserved. Published by arrangements with author. No part may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by an information storage or retrieval system without advance permission in writing from the Plumbing-Heating-Cooling Contractors-National Association.
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 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 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 9D

Watts Series 088PCQT

Watts Series 800M4QT

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 008PCQT**

Health Hazard Vacuum Breaker, Anti-Siphon, Spill Resistant (1/4" - 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.

Applicable Watts Product for NSPC Code Section 7.11.5:

**WATTS SERIES NLF9**

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 NLF9.

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.
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 backflow 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 ANTI-SIPHON 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", 11/2", 121/2")

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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 device 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 CODE - CHAPTER 10 - WATER SUPPLY AND DISTRIBUTION

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:

<table>
<thead>
<tr>
<th>Section</th>
<th>Watts Model(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>Air Gap</td>
</tr>
<tr>
<td>A.2</td>
<td>288A</td>
</tr>
<tr>
<td>A.3</td>
<td>Series 8</td>
</tr>
<tr>
<td>A.4</td>
<td>709</td>
</tr>
<tr>
<td>B.1</td>
<td>800M4QT</td>
</tr>
<tr>
<td>B.2</td>
<td>008PCQT</td>
</tr>
<tr>
<td>B.3</td>
<td>9D</td>
</tr>
<tr>
<td>B.4</td>
<td>709, 007, 774</td>
</tr>
<tr>
<td>B.5</td>
<td>008PCQT, 909, 994</td>
</tr>
<tr>
<td>C.1</td>
<td>9D</td>
</tr>
<tr>
<td>C.2</td>
<td>007, 709, 774</td>
</tr>
<tr>
<td>C.3</td>
<td>009, 909, 994</td>
</tr>
<tr>
<td>D.1</td>
<td>800M4QT</td>
</tr>
<tr>
<td>D.2</td>
<td>008PCQT</td>
</tr>
<tr>
<td>D.3</td>
<td>008PCQT, 909, 994</td>
</tr>
<tr>
<td>E.1</td>
<td>009, 909, 994</td>
</tr>
</tbody>
</table>
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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:
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 a Watts Regulator Company Series WB.

**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 Code - Chapter 10 - Water Supply and Distribution**

**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 backflow 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 than 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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 (1/4", 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 Code - Chapter 10 - Water Supply and Distribution

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”)**

**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.
Applicable Watts Product for NSPC Code Section 10.5.9:

**Watts Series 007DCDA**

Double Check Detector Assembly (2"-3")

**Specifications:**
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.
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 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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 (1/4" - 2")*

**Specifications:**

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 (specificly 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.

---

**WATTS SERIES 009**

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

**Specifications:**

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.

---

**WATTS SERIES 008PCQT**

*Health Hazard Vacuum Breaker, Anti-Siphon, Spill Resistant (1/2" - 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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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:
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.

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

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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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", 11/4", 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.

Applicable Watts Product for NSPC Code Section 10.8.7:

Watts Series 116/1116

Water Pressure Reducing Valve (11/4" - 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. 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. The valve shall be a Watts Regulator Company Series Governor 80. 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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 (1/2" - 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.

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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 valve(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), 125 psi 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, electrosurfacing 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 150 psi (8.6 bars) WSP, 600 psi (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 (1/8" - 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 electrosurfaced nickel plated ball, reinforced Durafill seats, reinforced PTFE stem packing and stem thrust bearing, ASTM B-16 brass blow-out proof stem. Valves shall be pressure rated to 150 psi (10 bars) WSP, 600 psi (41 bars) WOG 1/8" - 1" (8-25 mm), 400 psi (28 bars) WOG 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 CODE - CHAPTER 10 - WATER SUPPLY AND DISTRIBUTION

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.

NSPC 2000 Section 10.14

10.14.6 Excessive Pressures

- 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.
- 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.
NSPC 2000 CODE - CHAPTER 10 - WATER SUPPLY AND DISTRIBUTION

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:**

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 30psi (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:**

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 30psi (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:**

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.
- **Pistons** - Threaded adapter and cap machined of free cutting brass.
- **Seals** - O-Rings made of EPDM • **Seal Lubricant** - Dow-Corning silicone compound, 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.

21
NSPC 2000 CODE - CHAPTER 10 - WATER SUPPLY AND DISTRIBUTION

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 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 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.
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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 Products for NSPC Code Section 10.16.1, 10.16.2 and 10.16.4:

WATTS SERIES 100XL

Temperature and Pressure Relief Valves (1/4"

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 40, 140, 240 & 340

Commercial Capacity T&P Relief Valves (1/2" - 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.
NSPC 2000 Code - Chapter 10 - Water Supply and Distribution

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 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:

Residential water heaters having relief valves with 1/2" outlets shall be equipped with a relief valve drain line. Drain line shall be constructed to conform with AGA ER4B-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.
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.
NSPC 2000 CODE - CHAPTER 14 - SPECIAL REQUIREMENTS FOR HEALTHCARE FACILITIES

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.

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 Code - Chapter 14 - Special Requirements for Healthcare Facilities

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).

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.

<table>
<thead>
<tr>
<th>Installation</th>
<th>Watts Recommended Products</th>
<th>Governing Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Compressors</td>
<td>Air Gap</td>
<td></td>
</tr>
<tr>
<td>Air Conditioning</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Air Conditioned Chill Water</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Air Conditioned Condenser Water</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Air Conditioned Cooling Towers</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Air Washers</td>
<td>Air Gap</td>
<td></td>
</tr>
<tr>
<td>Aspirator, Medical</td>
<td>288A/909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Aspirator, Herbicide &amp; Root Feeders</td>
<td>#8</td>
<td>ASSE Std 1011</td>
</tr>
<tr>
<td>Autoclave &amp; Sterilizer</td>
<td>28BA</td>
<td>ASSE Std J1011/1001</td>
</tr>
<tr>
<td>Autopsy Tables</td>
<td>28BA/008</td>
<td>ASSE Std 1001/1020/1056</td>
</tr>
<tr>
<td>Bedpan Washer, Flushing Rim</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Bathtub Below Rim Filler</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Aspirator, Medical</td>
<td>288A/909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Autopsy Tables</td>
<td>28BA/008</td>
<td>ASSE Std 1001/1020/1056</td>
</tr>
<tr>
<td>Bipolar Fount.</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Bedpan Washer, Flushing Rim</td>
<td>28BA/008/800</td>
<td>ASSE Std 1001/1020/1056</td>
</tr>
<tr>
<td>Beverage Dispensing Machines</td>
<td>SD3</td>
<td>ASSE Std 1022</td>
</tr>
<tr>
<td>Bidet</td>
<td>28BA/388ASC</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Boiler, Residential Feed Line</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Boiler, Industrial Feed Line</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Brine Tank</td>
<td>Air Gap</td>
<td></td>
</tr>
<tr>
<td>Bottle Washer*</td>
<td>28BA or 008/800</td>
<td>ASSE Std 1001/1020/1056</td>
</tr>
<tr>
<td>Carbonated Beverage Vending Machine</td>
<td>SD3</td>
<td>ASSE Std 1022</td>
</tr>
<tr>
<td>Chemical Feeder Tanks</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Chiller Tanks</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Chlorinator</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Coffee Urn</td>
<td>28BA/388ASC</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Cooking Kettles</td>
<td>28BA/388ASC</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Condensate Tanks</td>
<td>Air Gap</td>
<td></td>
</tr>
<tr>
<td>Cuspidor, Dental</td>
<td>28BA/388ASC</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Dairy Equipment*</td>
<td>28BA/008/800</td>
<td>ASSE Std 1001/1020/1056</td>
</tr>
<tr>
<td>Degreasing Equipment</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Detergent Dispensers*</td>
<td>28BA/008</td>
<td>ASSE Std 1001/1056</td>
</tr>
<tr>
<td>Developing Tanks*, Photo</td>
<td>28BA/008</td>
<td>ASSE Std 1001/1056</td>
</tr>
<tr>
<td>Digesters, Hospital</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Commercial Dishwasher*</td>
<td>28BA/008</td>
<td>ASSE Std 1001/1056</td>
</tr>
<tr>
<td>Drinking Fountain</td>
<td>Air Gap</td>
<td></td>
</tr>
<tr>
<td>Dye Vats &amp; Tanks</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Etching Tanks</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Fountain, Livestock Drinking</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Fountain, Ornamental</td>
<td>909/009/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Garbage Can Washer</td>
<td>9D</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Garbage Disposers</td>
<td>28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Hose Faucets</td>
<td>8/NF8/8FR</td>
<td>ASSE Std 1011</td>
</tr>
<tr>
<td>Installation</td>
<td>Watts Recommended Products</td>
<td>Governing Standards</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>----------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Humidifier Tank &amp; Boxes</td>
<td>.28B A</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Hydrotherapy Baths</td>
<td>.28BA/398ASC</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Irrigation System*</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>J anitor Closets</td>
<td>8</td>
<td>ASSE Std 1011</td>
</tr>
<tr>
<td>Laundry Machine, Hospital</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Lavatory</td>
<td>Air Gap</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Lawn Sprinkler, Chemical Injection</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Main Line (Potable Water)</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Make-Up Tank</td>
<td>.90</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Marina, Boat Connections</td>
<td>8/7/Cu7</td>
<td>ASSE Std 1011/1024</td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>7/Cu7</td>
<td>ASSE Std 1024</td>
</tr>
<tr>
<td>Pipette Washer, Sinks, Wash-Up</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Photo Lab Sinks</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Potato Peeler</td>
<td>Air Gap</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Processing Tanks</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Pump Pr ime Lines</td>
<td>.90</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Pump, Water Oper Eject</td>
<td>.90</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Recirculated Water</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Residential Supply Service</td>
<td>7/Cu7</td>
<td>ASSE Std 1024</td>
</tr>
<tr>
<td>Reclain Pit</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Serrated Faucets (Lab)</td>
<td>NLF9</td>
<td>ASSE Std 1035</td>
</tr>
<tr>
<td>Sewer Flushing Manhole</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Shampoo Basin Hose Rinse</td>
<td>.28BA or N9CD</td>
<td>ASSE Std 1001/1052</td>
</tr>
<tr>
<td>Sinks, Wash-Up</td>
<td>Air Gap</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Sitz Bath</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Sizing Vats &amp; Boxes</td>
<td>.709/007/775</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Soap Mixing Tank</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Solution Tanks</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Sprinkler System,Fire Protection*</td>
<td>.709/799CDA/909/909RPDA</td>
<td>ASSE Std 1015/1048/1013/1047</td>
</tr>
<tr>
<td>Starch Tanks</td>
<td>.709/007/775</td>
<td>ASSE Std 1013</td>
</tr>
<tr>
<td>Steam Cleaner*</td>
<td>8</td>
<td>ASSE Std 1011</td>
</tr>
<tr>
<td>Steam Table</td>
<td>.28BA/398ASC</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Still*</td>
<td>.28BA/008</td>
<td>ASSE Std 1001/1056</td>
</tr>
<tr>
<td>Swimming Pool,Commercial</td>
<td>.709/007/775</td>
<td>ASSE Std 1015</td>
</tr>
<tr>
<td>Trap Primer</td>
<td>A200</td>
<td>ASSE Std 1018</td>
</tr>
<tr>
<td>Ultrasonic Cleaner</td>
<td>.28BA</td>
<td>ASSE Std 1001</td>
</tr>
<tr>
<td>Urinal, Trough</td>
<td>.90</td>
<td>ASSE Std 1012</td>
</tr>
<tr>
<td>Wall Hydrants, Frost Free</td>
<td>NFB/FR</td>
<td>ASSE Std 1011</td>
</tr>
<tr>
<td>Water Treatment Tanks</td>
<td>.709/007/775</td>
<td>ASSE Std 1015</td>
</tr>
<tr>
<td>Water Well Secondary System</td>
<td>.909/099/995</td>
<td>ASSE Std 1013</td>
</tr>
</tbody>
</table>

* 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.
For Technical Assistance Call Your Authorized Watts Agent.

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>Telephone #</th>
<th>Fax #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanderbilt, Inc.</td>
<td>980-294-4000</td>
<td>980-294-4000</td>
</tr>
</tbody>
</table>

For more information, contact your Authorized Watts Agent.

South East

- Billing & Associates, Inc.
- McDaniel & Associates
- Nalco McDaniel, Inc.
- Stanker & Associates

South Central

- Associated Independent Marketing
- Dave Watson Associates
- Donnie McLane, Inc.
- Mid-Continent Marketing Services Ltd.

South West

- Delco Sales, Inc.
- Pro-Fit Sales, Inc.
- Pro-Form Sales, Inc.
- Soderholm & Associates

North West

- Watts Industries (Canada) Inc.
- Grifka Sales Group, Inc.
- Hydro-Mechanical Sales, Ltd.
- Hydro-Mechanical Sales, Ltd.

For assistance, call your Authorized Watts Agent in your area.

Watts USA Web Site: www.wattsreg.com  •  Watts Canada Web Site: www.wattscda.com

© Watts Regulator Co., 1998

Printed in U.S.A.

Watts Regulator Co.

815 Chatham St., North Andover, MA 01845-6098 U.S.A.

978-688-1811 978-794-1848