SECTION 22 10 00

PLUMBING PIPING

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\*\* NOTE TO SPECIFIER \*\* Zurn Industries LLC; Engineered Water Solutions.  
This section is based on the products of Zurn Industries LLC, which is located at:  
511 W. Freshwater Way  
Milwaukee, WI 53204  
Toll Free Tel: 855-663-9876  
Email: [request info (zurn-info@zurn.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Zurn+Industries+LLC&coid=50102&rep=&fax=&message=RE:%20Spec%20Question%20(15145zur):%20%20&mf=)  
Web: [www.zurn.com](http://www.zurn.com)   
  
 [ [Click Here](http://www.arcat.com/arcatcos/cos50/arc50102.html) ] for additional information.  
  
Zurn Engineered Water Solutions' is a recognized leader in commercial, municipal, and industrial markets. Zurn manufactures the largest breadth of engineered water solutions in the industry, including a wide spectrum of sustainable plumbing products.  
Zurn delivers total building solutions for new construction and retrofit applications that enhance any building's environment.  
Knowledge - Technically competent factory field team and rep network.  
Reliability - innovative, value-add designs are focused on the end user and installer to provide ease of installation and low life-cycle costs.  
Serviceability - with over 50 distribution centers across the U.S. and in all major markets, you can count on getting product when you need it!  
Accountability and Service - One company to provide a total building solution for drainage and point-of-use water control products.  
Plumbing fixtures listed in this specification may fall under jurisdiction of the Federal Reduction of Lead in Drinking Water Act (42 USC 300G). Effective January 4, 2014: Wetted surfaces of valves, fittings or fixtures contacting potable water must have a weighted-average lead content of no more than 0.25 percent. The specifier should be aware of requirements by authorities having jurisdiction and specify lead free products when necessary. For additional information online: [www.zurn.com/leadfree](http://www.zurn.com/leadfree).

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Vertical Flexible Expansion Joints.
    2. Dielectric Fittings.
    3. Gate Valves, NRS and OSY.
    4. Detector Check Valves.
    5. Iron, Grooved-End Butterfly Valves.
    6. Pressure Reducing Valves.
    7. Vacuum Breakers.
    8. BackFlow Preventers.
    9. Temperature-Actuated Water Mixing Valves.
    10. Wall Hydrants.
    11. Ground Hydrants.
    12. Post Hydrants.
    13. Water Hammer Arresters.
    14. Trap Primer Devices.
  1. RELATED SECTIONS:

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 23 05 00 - Common Work Results for HVAC -Basic Mechanical Materials and Methods for Plumbing Piping.
    2. Section 22 14 26.13 - Roof Drains.
    3. Section - .
    4. Section 40 10 00 - Gas and Vapor Process Piping.
    5. Section 22 43 23 - Healthcare Showers.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Society of Mechanical Engineers (ASME):
       1. ASME A112.1.2 - Air Gaps in Plumbing Systems (For Plumbing Fixtures and Water-Connected Receptors).
       2. ASME A112.21.3M - Hydrants for Utility and Maintenance Use.
       3. ASME B1.20.1 - Pipe Threads, General Purpose, Inch.
       4. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
       5. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
    2. American Society of Safety Engineers (ASSE):
       1. ASSE 1001 - Performance Requirements for Atmospheric Type Vacuum Breakers.
       2. ASSE 1003 - Water Pressure Reducing Valves for Domestic Water Distribution Systems.
       3. ASSE 1010 - Water Hammer Arresters.
       4. ASSE 1011 - Hose Connection Vacuum Breakers.
       5. ASSE 1012 - Backflow Preventer with Intermediate Atmospheric Vent.
       6. ASSE 1013 - Reduced Pressure Principle Backflow Preventers and Reduced Pressure Fire Protection Principle Backflow Preventers.
       7. ASSE 1017 - Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems.
       8. ASSE 1018 - Performance Requirements for Trap Seal Primer Valves - Potable Water Supplied.
       9. ASSE 1020 - Performance Requirements for Pressure Vacuum Breaker Assembly.
       10. ASSE 1022 - Performance Requirements for Backflow Preventer for Beverage Dispensing Equipment.
       11. ASSE 1024 - Performance Requirements for Dual Check Backflow Preventers.
       12. ASSE 1048 - Performance Requirements for Double Check Detector Fire Protection Backflow Prevention Assemblies.
       13. ASSE 1056 - Performance Requirements for Spill Resistant Vacuum Breaker Assemblies.
       14. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices.
       15. ASSE 1079 - Performance Requirements for Dielectric Fittings.
    3. ASTM International (ASTM):
       1. ASTM A48 - Standard Specification for Gray Iron Castings.
       2. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
       3. ASTM A536 - Standard Specification for Ductile Iron Castings.
       4. ASTM B16 - Standard Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines.
       5. ASTM B84 - Standard Test Method for Temperature-Resistance Constants of Alloy.
       6. ASTM B150 - Standard Specification for Aluminum Bronze Rod, Bar, and Shapes.
       7. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.
    4. American Water Works Association (AWWA):
       1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
       2. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
       3. AWWA C510 - Double Check Valve Backflow Prevention Assembly.
       4. AWWA C530 - Pilot-Operated Control Valves.
       5. AWWA C550 - Protective Interior Coating for Valves and Hydrants.
       6. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
       7. AWWA C606 - Grooved and Shouldered Joints.
       8. AWWA M44 - Distribution Valves: Selection, Installation, Field Testing, and Maintenance.
    5. FM Global:
    6. National Science Foundation:
       1. NSF 61 - Drinking Water System Components - Health Effects.
       2. NSF 372 - Drinking Water System Components - Lead Content.
    7. PDI-WH 201 - Water Hammer Arresters.
    8. UL Listed:
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Each valve type.
     3. Product Data: For each type of product.

\*\* NOTE TO SPECIFIER \*\* Delete subparagraph if equipment does not include wiring.

* + - 1. Control, signal and power wiring diagrams.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: ISO 9001 registered.
        1. ISO 9001 registered.
        2. Minimum 5 years manufacturing similar products.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below if the Contractor is not to be responsible for the design of fire-suppression standpipes.

* + 1. Installer Qualifications:
       1. Minimum 2 years installing similar products.

\*\* NOTE TO SPECIFIER \*\* Delete subparagraph below if the Contractor is not required to be responsible for the engineering design.

* + - 1. Installer's responsibilities:
         1. Design, fabrication, and installation of fire-suppression standpipes.
         2. Professional engineering services to assume engineering responsibility.

Working plans.

Calculations.

Field test report.

* + 1. Regulatory Compliance Requirements:
       1. Utility company supplying the water.
          1. Tapping of water mains.
          2. Backflow prevention.
       2. Authorities having jurisdiction: Materials, installation, and testing.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
        1. Protect internal parts, valve ends, and specialties against corrosion, dirt, and damage.
        2. Store valves set in closed position.
        3. Storage:
           1. Indoors: Higher than ambient dew point temperature.
           2. Outdoors: Watertight enclosures off ground.
     2. Handling: Comply with manufacturer's recommendations. Avoid damaging components.
        1. Large Valves: Operating handles or stems are not rigging points for slings.

\*\* NOTE TO SPECIFIER \*\* Delete article below if interruption of water distribution is not necessary.

* 1. PROJECT CONDITIONS
     1. Interruption of Fire-Suppression Water-Service Piping:
        1. Arrange temporary water-distribution service.
        2. Notify Owner or Owner's representative no fewer than two business days in advance of proposed interruption of service.
           1. Proceed upon written permission.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Zurn Industries LLC, which is located at: 511 W. Freshwater Way; Milwaukee, WI 53204; Toll Free Tel: 855-663-9876; Email: [request info (zurn-info@zurn.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Zurn+Industries+LLC&coid=50102&rep=&fax=&message=RE:%20Spec%20Question%20(15145zur):%20%20&mf=); Web: [www.zurn.com](http://www.zurn.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. VERTICAL FLEXIBLE EXPANSION JOINTS
     1. Basis-of-Design Product: Zurn Industries LLC; Wilkins: Model Z190.
        1. Standards Compliance:
           1. AWWA C111.
        2. Materials:
           1. Body: Cast iron.

Dura-coated.

Galvanized.

* + - * 1. Sleeve:

Polished bronze

Siliconed bronze.

* + - * 1. Packing Gasket: Preformed neoprene.

Comply with AWWA C111.

* + - 1. End Connections:
         1. Threaded (NPS / DN): \_\_\_\_\_\_.
         2. No-hub (NPS / DN): \_\_\_\_\_\_.
  1. DIELECTRIC FITTINGS
     1. Dielectric Unions NPS 2 (DN 50) and smaller:
        1. Separate copper and ferrous materials with nonconductive insulating material
        2. Basis of Design: Zurn Industries, LLC; Wilkins:
           1. Model DUXL (Lead Free).
           2. Model DUXLC (Lead Free).
           3. Model DUXLM (Lead Free).
        3. Pressure Rating: 250 psig (1725 kPa).
        4. End Connections: Compatible with pipes being joined.
           1. Solder-joint copper ASME B1.20.1, (inch / mm): \_\_\_\_\_\_ diameter.
           2. Threaded ferrous ASME B16.22, (NPS / DN): \_\_\_\_\_\_.
     2. Dielectric Flanges:
        1. Separate copper and ferrous materials with nonconductive insulating material.
        2. Basis of Design: Zurn Industries, LLC; Wilkins.
           1. Model DUXLC (Lead Free).
        3. Pressure Rating: 250 psig (1725 kPa).
        4. End Connections: Compatible with pipes being joined
           1. Solder-joint copper ASME B1.20.1.
           2. Threaded ferrous ASME B16.22.
  2. GATE VALVES
     1. Nonrising-Stem, Resilient-Seated Gate Valves NPS 2-1/2 through NPS 12 (DN 65 through DN 300).
        1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins; Model 48 (Lead Free).
        2. Standard:
           1. ASME B16.1.
           2. ASTM A276.
           3. ASTM A536.
           4. ASTM B150.
           5. ASTM B584
           6. AWWA C509 and C550.
           7. AWWA C606.
           8. FM Global Approved.
           9. NSF/ANSI 372.
           10. UL Listed.
        3. Maximum Working Pressure: 250 psi (1725 kPa).
        4. Body and Bonnet: Ductile iron, ASTM A536.
           1. Coating: Fusion bond epoxy resin, AWWA C550.
        5. Wedge: Ductile iron, ASTM A536.
           1. Coating: FDA approved elastomeric.
        6. Internal Components: NSF Listed.
           1. Stainless steel ASTM A276.
           2. Brass ASTM B584.
        7. Stem:
           1. Bronze, ASTM B150.
           2. Stainless steel ASTM A276.
        8. Elastomers: EPDM, FDA Approved.
        9. Handwheel: Ductile iron, ASTM A536.
        10. End Connections:

\*\* NOTE TO SPECIFIER \*\* Flange connections are standard for this model.

* + - * 1. Flanged, ASME B16.1 Class 125 (NPS / DN): \_\_\_\_\_\_.
        2. Grooved, AWWA C606 (NPS / DN): \_\_\_\_\_\_.
        3. Flanged, ASME B16.1 and grooved, AWWA C606 (NPS / DN): \_\_\_\_\_\_.
    1. OS&Y, Rising-Stem, Resilient-Seated Gate Valves NPS 2-1/2 through NPS 2-1/2 through NPS 12 (DN 65 through DN 300):
       1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins; Model 48OSY (Lead Free).
       2. Standards:
          1. ASME B16.1.
          2. ASTM A276.
          3. ASTM A536.
          4. ASTM B150.
          5. ASTM B584.
          6. AWWA C509.
          7. AWWA C550.
          8. AWWA C606.
          9. FM Global Approved.
          10. NSF/ANSI 372.
          11. UL Listed.
       3. Maximum Working Pressure: 250 psi (1725 kPa).
       4. Body and Bonnet: Ductile iron, ASTM A536.
          1. Coating: Fusion bond epoxy resin, AWWA C550.
       5. Wedge: Ductile iron, ASTM A536.
          1. Coating: FDA approved elastomeric.
       6. Internal Components: NSF Listed.
          1. Stainless steel ASTM A276.
          2. Brass ASTM B584.
       7. Stem:
          1. Bronze, ASTM B150.
          2. Stainless steel ASTM A276.
       8. Elastomers: EPDM, FDA Approved.
       9. Handwheel: Ductile iron, ASTM A536.

\*\* NOTE TO SPECIFIER \*\* Delete subparagraph below if switch is specified elsewhere.

* + - 1. Tamper Switch: External.
      2. End Connections:

\*\* NOTE TO SPECIFIER \*\* Flange connections are standard for this model.

* + - * 1. Flanged, ASME B16.1 Class 125 (NPS / DN): \_\_\_\_\_\_.
        2. Grooved, AWWA C606 (NPS / DN): \_\_\_\_\_\_.
        3. Flanged, ASME B16.1 Class 125 and grooved, AWWA C606 (NPS / DN): \_\_\_\_\_\_.
    1. Bronze Gate Valves, NPS 3/4 through NPS 2 (DN 20 through DN 50):
       1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins; Model 48OSYBR.
       2. Standard:
          1. ASME B1.20.1.
          2. ASTM B16.
          3. ASTM B584.
          4. FM Global Approved.
          5. UL Listed.
       3. Maximum Pressure Rating: 200 psi (1379 kPa).
       4. Body and Bonnet: Cast Bronze, ASTM B584.
       5. Wedge: Cast Bronze, ASTM B584.
       6. Stem: Brass, ASTM B16.
       7. Packing: Non-asbestos graphite.
       8. Handwheel: Iron.

\*\* NOTE TO SPECIFIER \*\* Delete subparagraph below if switch is specified elsewhere.

* + - 1. Tamper Switch: External.
      2. End Connections: Threaded, ASME B1.20.1 (NPS / DN): \_\_\_\_\_\_.
  1. PIPING DETECTOR CHECK VALVES
     1. Basis-of-Design Product: Zurn Industries LLC; Wilkins; Model 310DA, NPS 4 (DN 100), NPS 6 (DN 150), and NPS 8 (DN 200).
        1. Set valve to allow minimal water flow through bypass meter when major water flow is required.
        2. Standards Compliance:
           1. ASME B16.1.
           2. ASTM A536.
           3. AWWA C550.
           4. AWWA C606.
           5. AWWA C700.
           6. FM Global Approved.
           7. NSF 372
           8. UL Listed.
        3. Type: Center guided detector check valve.
        4. Maximum Pressure Rating: 175 psi (1200 kPa).
        5. Body Material: Ductile Iron ASTM A536 Grade 4.
           1. Coating: FDA approved fusion epoxy resin.
        6. Internal Components: NSF Listed.
           1. Stainless steel 300 series.
           2. NORYL.
        7. Access Covers: Ductile Iron ASTM A536 Grade 4.
        8. Elastomers: EPDM or Buna Nitrile; FDA approved.
        9. Hinge Spring: Stainless steel 300 series.
        10. By-Pass BackFlow Assembly: Include threaded bypass taps in inlet and outlet for bypass meter connection.
            1. GPM Meter.

\*\* NOTE TO SPECIFIER \*\* Check valve can be purchased with our without gate valves.

* + - 1. Gate Valves:
         1. NRS.
         2. OS&Y.
      2. End Connections:
         1. Flanged, ASME B16.1 Class 125 (NPS / DN): \_\_\_\_\_\_.
         2. Grooved ends, AWWA C606 (NPS / DN): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete water meter below if not necessary.

* + - 1. Water Meter: AWWA C700, disc type, at least one-fourth size of detector check valve. Include meter, bypass piping, gate valves, check valve, and connections to detector check valve.
  1. DUCTILE-IRON, GROOVED-END BUTTERFLY VALVES

\*\* NOTE TO SPECIFIER \*\* Valve below is designed for use in potable water lines, irrigation systems, waterworks connections and fire suppression systems.

* + 1. Grooved-End Butterfly Valves NPS 2 1/2 through NPS 10 (DN 65 through DN 250):
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins; Model 49 (Lead Free.
          1. Standard:

ASME B16.1.

ASTM A48.

ASTM A536.

ASTM B584.

AWWA C550.

AWWA C606.

FM Global Approved.

NSF 372.

UL Listed.

* + - 1. Maximum Pressure Rating: 175 psi (1200 kPa).
      2. Body Material: Ductile Iron ASTM A536.
      3. Body Coating: AWWA Fusion bond epoxy.
      4. Seat Material: EPDM.
      5. Stem: Bronze ASTM B584.
      6. Stem Bearings: Teflon impregnated fiberglass with stainless steel backing.
      7. Disc: Ductile Iron ASTM A536.
      8. Disc Coating:
         1. EPDM encapsulation.
      9. Actuator: Weatherproof for indoor or outdoor use.
         1. Worm gear, handwheel combination.
         2. Traveling nut, 416 Stainless Steel.

\*\* NOTE TO SPECIFIER \*\* Delete subparagraph below if switch is specified elsewhere.

* + - 1. Supervisory Switches: One single pole and one double throw, pre-wired.
         1. Rating:

11 Amps at 125/250 VAC 60 Hz.

0.25 Amps at 250 VDC, 0.50A @ 125VDC.

* + - 1. End Connections:
         1. Grooved-ends; AWWA C606 (NPS / DN): \_\_\_\_\_\_.
         2. Flanged: ASME B16.1 Class 125 (NPS / DN): \_\_\_\_\_\_.
  1. PRESSURE-REDUCING VALVES
     1. Water Regulators NPS 1/2 to NPS 3 (DN 15 to DN 80):
        1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins.
           1. Model NR3XL (Lead Free)
           2. Model 70XL (Lead Free).
           3. Model 600XL (Lead Free).
           4. Model 500XL (Lead Free).
           5. Model 500XLYSBR(Lead Free).
        2. Standards:
           1. ASME B1.20.1.
           2. ASME B16.22.
           3. ASSE 1003.
           4. ASTM B584.
           5. NSF/ANSI 61.
           6. NSF/ANSI 372.
        3. Maximum Working Pressure:
           1. 300 psig (2070 kPa).

\*\* NOTE TO SPECIFIER \*\* Pressure below applies to model NR3XL, NPS 1/2 through NPS 1-1/4 (DN 15 through DN 32).

* + - * 1. 400 psig (2758 kPa).
      1. Body Material and Access Covers: Cast bronze or low-lead brass ASTM B584.

\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for models NR3XL and 70XL.

* + - 1. Stem and Sleeve: Stainless steel, 300 series.

\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for models 500XL and 600XL

* + - 1. Stem and Plunger: Cast Bronze, ASTM B584, or low-lead brass.
      2. Seat: Stainless steel, 300 series.
      3. Elastomers: EPDM, Buna Nitrile, FDA approved.

\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for models 70XL and 600XL Strainers are options on Model 500XL

* + - 1. Strainer Screen: Stainless steel, 300 series.

\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for models 500XLYSBR only.

* + - 1. Bronze (lead free) Y strainer on inlet.

\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for models 500XL and 600XL

* + - 1. Integral By-Pass Check Valve.
      2. End Connections:
         1. Threaded per FNPT ANSI B1.20.1 (NPS / DN): \_\_\_\_\_\_.
         2. Copper sweat per ANSI B16.22 (inch / mm): \_\_\_\_\_\_.
         3. CPVC tailpiece (NPS / DN): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water regulators on drawings if more than one type or configuration is used.

* + - 1. Capacities and Characteristics:
         1. Size: (NPS / DN): \_\_\_\_\_\_.
         2. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         3. Design Inlet Pressure, maximum: 300 psi (2068 kPa).
         4. Designed Reduced Pressure Range:

\*\* NOTE TO SPECIFIER \*\* Pressure below applies to model NR3XL, NPS 1/2 through NPS 1-1/4 (DN XX through DNXX).

15 psi to 75 psi (103 kPa to 517 kPa).

25 psi to 75 psi (172 kPa to 517 kPa).

\*\* NOTE TO SPECIFIER \*\* Valves in paragraph below are primarily used in fire suppression systems to relieve high systems pressures

* + 1. Water Control Valves NPS 1-1/4 (DN 32) to NPS 16 (DN 400):
       1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins.
          1. Model ZW204 (Lead-Free) Non-Modulating Float Valve.
          2. Model ZW205 (Lead-Free) Pressure Relief /Pressure Sustaining Valve.
          3. Model ZW206 (Lead-Free) Solenoid Control Valve.
          4. Model ZW209 (Lead-Free) Pressure Reducing Valve.

\*\* NOTE TO SPECIFIER \*\* Delete subparagraph below if valve sizes with inlet and outlet pressures stated on Drawings for each water control valve.

* + - 1. Size: (NPS / DN): \_\_\_\_\_\_.
      2. Pilot-operation, diaphragm-type, single-seated main water control valve. Include small pilot control valve, restrictor device, specialty fittings, and sensor piping.
      3. Standards:
         1. ASTM A536.
         2. AWWA C530.
         3. NSF 61 and 372.
      4. Pressure Rating: Initial pressure of 150 psig (1035 kPa) minimum.
      5. Main Valve Body and Cover: Ductile-iron, ASTM A536.
         1. Coating: Epoxy, FDA Approved.
      6. Trim (Disc Guide, Seat, Stem, and Spring): Stainless-steel.
      7. Disc: Buna-N rubber.
      8. Diaphragm: Buna-N rubber, nylon reinforced.
      9. Exterior Coating: Blue epoxy, FDA approved.
      10. Valve design:

Angle.

Globe.

* + - 1. End Connections:

\*\* NOTE TO SPECIFIER \*\* See product literature for a full range of end connection options available.

* + - * 1. NPS 3 (DN 80) and smaller: Threaded, ANSI B1.20.1, 400 psi (XXXX kPA) maximum pressure.
        2. NPS 1 1/2 (DN 40) and larger: Flanged, ANSI B16.42.

ANSI Class 150, 250 psi (1724 kPa) maximum pressure.

ANSI Class 300, 300 psi (2070 kPA) maximum pressure.

* + - * 1. NPS 1 1/2 (DN 40) and larger: Grooved 300 psi (2070 kPa) maximum pressure.

\*\*NOTE TO SPECIFIER\*\* the subparagraph below applies only to model ZW206.

* + - 1. Solenoid Control.
         1. Body: Brass ASTM B283.
         2. Enclosure: NEMA Type 1, 2, 3, 3S, 4, and 4X.

General purpose, watertight.

* + - * 1. Voltage:

AC: 24, 120, 240, 480, at 60 Hz.

DC: 6, 12, 24, 129, and 240.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
\*\* NOTE TO SPECIFIER \*\* Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics:
         1. Size: (NPS / DN): \_\_\_\_\_\_.
         2. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         3. Design Inlet Pressure: (psig / kPa): \_\_\_\_\_\_.
         4. Design Outlet Pressure Setting: (psig / kPa): \_\_\_\_\_\_.
  1. VACUUM BREAKERS

\*\* NOTE TO SPECIFIER \*\* Applications where continuous pressure is required.

* + 1. Pressure Vacuum Breaker Assembly NPS 1/2 through NPS 2 (DN 15 through DN 50):
       1. Basis of Design: Zurn Industries, LLC; Wilkins.
          1. Model 720A.
          2. Model 420XL (Lead Free).
       2. Standards:
          1. ASSE 1020.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model 420XL only.

* + - * 1. NSF 372.
      1. Maximum Pressure Rating:
         1. 150 psi (1034 kPa).

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model 420XL only.

* + - * 1. 175 psi (1207 kPa).
      1. Size: (NPS / DN): \_\_\_\_\_\_.
      2. Body Material: Cast bronze, low-lead ASTM B584.
      3. Elastomers:
         1. Silicone FDA Approved.
         2. Buna Nitrile:

FDA Approved.

\*\* NOTE TO SPECIFIER \*\* subparagraph below ap0plies only to model 420XL.

NSF Listed.

* + - 1. Polymers:
         1. Polypropylene, FDA Approved.
         2. Delrin:

FDA Approved.

\*\* NOTE TO SPECIFIER \*\* subparagraph below ap0plies only to model 420XL.

NSF Listed.

\*\* NOTE TO SPECIFIER \*\* subparagraph below ap0plies only to model 420XL.

* + - * 1. Noryl NSF Listed.
      1. Springs: Stainless steel 300 series.
      2. End Connection: Threaded, ANSI B1.20.1
  1. BACKFLOW PREVENTERS

\*\* NOTE TO SPECIFIER \*\* Verify, with authorities having jurisdiction, whether AWWA, or UL-listed, or FM Global-approved backflow preventers are required.   
Reduced-pressure-principle backflow preventers are for high hazard. These valves are to be used in potable water lines and prevent backsiphonage and backpressure of contaminated water into the potable supply.

* + 1. Reduced-Pressure-Principle Backflow Preventers NPS 1/2 to NPS 10 (DN XX to DN 250):
       1. Basis-of-Design Zurn Industries, LLC; Wilkins.
          1. Model 375A (Lead-Free).
          2. Model 375AST (Lead-Free).
          3. Model 375ST (Lead-Free).
          4. Model 375XL (Lead-Free).
       2. Standard:
          1. ASME B16.1.
          2. ASME A112.1.2.
          3. ASTM A536.
          4. ASSE 1013.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375A, and 375AST and only when supplied with gate valves.

* + - * 1. AWWA C511.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375A, 375AST, and 375XLonly.

* + - * 1. AWWA C550.
        2. AWWA C606.
        3. NSF 61 Annex G.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375AST, 375ST, and 375XLonly.

* + - * 1. NSF 372.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375A, 375AST, and 375XLonly.

* + - * 1. UL Listed.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375A, and 375AST.

* + - * 1. FM Global Approved.
      1. Operation: Continuous-pressure applications.
      2. Maximum Working Pressure: 175 psig (1200 kPa).

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to valves 2 NPS (50 DN) and smaller:

* + - 1. Size: (NPS / DN): \_\_\_\_\_\_.
         1. Valve Body Housing: Reinforced Nylon, FDA approved.
         2. Internal Components: Delrin, Nylon, NSF Listed.
         3. Elastomers: Silicon or Buna nitrile, FDA approved.
         4. End Connections: Threaded ANSI B1.20.1.
         5. Accessories:

Ball valves, threaded ends.

\*\*NOTE TO SPECIFIER\*\* Subparagraph below applies to 375XL only.

Strainer: Bronze "Y" type.

Air-Gap Fitting: ASME A112.1.2, matching backflow preventer connection.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to valves NPS 2-1/2 (DN 65) and larger:

* + - 1. Size: (NPS / DN): \_\_\_\_\_\_.
         1. Valve Body and Access Covers:

\*\* NOTE TO SPECIFIER \*\*The subparagraph below refers to model 375AST.

Stainless Steel 304L

\*\* NOTE TO SPECIFIER \*\*The subparagraph below refers to model 375A.

Ductile iron, ASTM A536 Grade4.

Coating: FDA approved epoxy finish.

* + - * 1. Internal Components: Stainless steel, 300 Series, and NORYL NSF Listed.
        2. Springs and Sensing Lines: Stainless steel, 300 series.
        3. Elastomers: EPDM or Buna Nitrile, FDA approved.
        4. End Connections:

Flanged: ANSI B16.1 Class 125.

Grooved for steel pipe: AWWA C606.

Combination grooved inlet AWWA C606, flanged outlet, ANSI B16.1 Class 125 and ANSI B16.1 Class 125.

Combination flanged inlet ANSI B16.1 Class 125 and ANSI B16.1 Class 125, grooved outlet AWWA C606.

* + - * 1. Accessories:

\*\* NOTE TO SPECIFIER \*\* For UL and FM approvals provide indicating-type shut-off valves.

Valves:

Non-rising stem gate valves.

OS&Y gate valves.

Butterfly-type with supervisory switch.

Post indicator gate valves.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to model 375A.

Less shut-off valves.

\*\* NOTE TO SPECIFIER \*\* Epoxy coated wye strainer is only available with flanged end connections.

Strainer Option: Epoxy coated wye strainer.

Air-Gap Fitting: ASME A112.1.2, matching backflow preventer connection.

\*\* NOTE TO SPECIFIER \*\* Delete one of the two subparagraphs below.

* + - 1. Valve Monitoring: Integral relief monitor switch.
      2. Valve Monitoring: Not required.
      3. Designed Flow Configuration:
         1. Horizontal, straight through.
         2. Vertical inlet, horizontal center section, and vertical outlet.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics :
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate:

NPS 2 (DN 50) and smaller: (psig / kPa): \_\_\_\_\_\_.

NPS 2-1/2 (DN 65) and larger: (psig / kPa): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Double-check, backflow-prevention assemblies are for low hazard and designed to protect against backsiphonage and backpressure of polluted water into the potable supply.

* + 1. Double-Check, Backflow-Prevention Assemblies NPS 3/4 to NPS 12 (DN 20 to DN 300):
       1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins:

\*\* NOTE TO SPECIFIER \*\* NPS 2-1/2 to NPS 12 (DN 65 to DN 300) applies to the two subparagraphs below..

* + - * 1. Model 350.

\*\* NOTE TO SPECIFIER \*\* NPS 2-1/2 to NPS 10 (DN 65 to DN 250) applies to the two subparagraphs below.

* + - * 1. Model 350A (Lead-Free).
        2. Model 350AST (Lead-Free).

\*\* NOTE TO SPECIFIER \*\* NPS 3/4 to NPS 2 (DN 20 to DN 50).

* + - * 1. Model 350XL (Lead-Free).

\*\* NOTE TO SPECIFIER \*\* NPS 2-1/2 to NPS 3 (DN 65 to DN 75).

* + - * 1. Model 450 (Lead-Free).
      1. Standard:
         1. ASME B1.20.1.
         2. ASME B16.1.
         3. ASSE 1015.
         4. ASTM A536.
         5. ASTM B84.
         6. ASTM B584.
         7. AWWA C510.
         8. AWWA C550.
         9. AWWA C606.

\*\* NOTE TO SPECIFIER \*\* Model 350XL is not FM Global Approved.

* + - * 1. FM Global Approved.
        2. NSF/ANSI 61 Annex G.
        3. NSF / ANSI 372.
        4. UL Listed.
      1. Operation: Continuous-pressure applications unless otherwise indicated.
      2. Maximum Working Pressure: 175 psig (1200 kPa).

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to valves 2 NPS (50 DN) and smaller:

* + - 1. Size: (NPS / DN): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* ASTM B584 in subparagraph below applies to valve sizes 3/4 NPS through 1 NPS.

* + - * 1. Valve Body and Access Covers: Cast bronze ASTM B84.

Housing: Reinforced Nylon.

* + - * 1. Internal Components: Delrin, NSF Listed.
        2. Springs: Stainless steel, 300 series.
        3. Elastomers: Silicone or Buna Nitrile, FDA approved.
        4. End Connections: Threaded , ASME B1.20.1.
        5. Accessories:

Ball valves, threaded ends, Bronze ASTM B584.

Strainer: Bronze "Y" type.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to valves NPS 2-1/2 (DN 65) and larger:

* + - 1. Size: (NPS / DN): \_\_\_\_\_\_.
         1. Valve Body and Access Covers:

Ductile iron, ASTM A536 Grade 4.

Coating: FDA approved epoxy finish.

\*\* NOTE TO SPECIFIER \*\* Choose stainless steel and delete ductile iron above for Model 350AST.

Stainless steel, 304.

* + - * 1. Internal Components: Stainless steel, 300 Series, and NORYL NSF Listed.
        2. Springs: Stainless steel, 300 series.
        3. Elastomers: EPDM or Buna Nitrile, FDA approved.
        4. End Connections:

Flanged, ASME B16.1 Class 125.

Grooved, AWWA C606.

Combination grooved inlet AWWA C606 and flanged outlet ASME B16.1 Class 125.

Combination flanged inlet ASME B16.1 Class 125 and grooved outlet AWWA C606.

* + - * 1. Accessories:

\*\* NOTE TO SPECIFIER \*\* For UL and FM approvals provide indicating-type shut-off valves.

Valves:

Non-rising stem gate valves.

OS&Y gate valves.

\*\* NOTE TO SPECIFIER \*\* The two options below are not available for Model 450

Butterfly-type with supervisory switch.

Post indicator gate valves.

Less shut-off valves.

\*\* NOTE TO SPECIFIER \*\* Epoxy coated wye strainer is only available with flanged end connections.

Strainer Option:

Epoxy coated wye strainer.

\*\* NOTE TO SPECIFIER \*\* Cast iron strainer below is only available on Model 450

Cast iron wye strainer.

* + - 1. Designed Flow Configuration:
         1. Horizontal, outdoor.
         2. Horizontal, indoor.
         3. Vertical, Indoor.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics:
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range Limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate:

NPS 2 (DN 50) and smaller: (psig / kPa): \_\_\_\_\_\_.

NPS 2-1/2 (DN 65) and larger: (psig / kPa): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics:
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range Limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate:

NPS 2 (DN 50) and smaller: (psig / kPa): \_\_\_\_\_\_.

NPS 2-1/2 (DN 65) and larger: (psig / kPa): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Reduced-pressure-detector, fire-protection backflow preventer assemblies are for high hazard and designed to protect against backsiphonage and backpressure of polluted water into the potable supply. Metered bypass is used to detect leaks and unauthorized use.

* + 1. Reduced-Pressure-Detector, Fire-Protection Backflow Preventer Assemblies NPS 2-1/2 to NPS 10 (DN 65 to DN 250):
       1. Basis-of-Design Zurn Industries, LLC; Wilkins:
          1. Model 375ADA.
          2. Model 375DA.
          3. Model 375ASTDA.
          4. Model 475DA.
       2. Standards:
          1. ASME A112.1.2.
          2. ASME B16.1.
          3. ASSE 1047.
          4. ASTM A536.
          5. AWWA C510.
          6. AWWA C550.
          7. AWWA C606.
          8. FM Global Approved.
          9. NSF/ANSI 61 Annex G
          10. NSF / ANSI 372.
          11. UL listed.
       3. Operation: Continuous-pressure applications.
       4. Maximum Working Pressure: 175 psig (1200 kPa).
       5. Valve Body and Access Covers:
          1. Ductile iron, ASTM A536 Grade4.

Coating: FDA approved epoxy finish.

\*\* NOTE TO SPECIFIER \*\* Choose stainless steel and delete ductile iron above for Model 375ASTDA.

* + - * 1. Stainless steel, 304.
      1. Internal Components: Stainless steel, 300 Series, and NORYL, NSF listed
      2. Springs: Stainless steel, 300 series.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below does not apply to Model 475DA.

* + - 1. Sensing Lines: Stainless steel braided hose.
      2. Elastomers: EPDM or Buna Nitrile, FDA approved.
      3. Metered Bypass Backflow Assembly:
      4. End connections:
         1. Flanged, ASME B16.1 Class 125.
         2. Grooved, AWWA C606.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below does not apply to Model 375DA.

* + - * 1. Combination flanged inlet ASME B16.1 Class 125 and grooved outlet AWWA C606.
      1. Accessories:

\*\* NOTE TO SPECIFIER \*\* For UL and FM approvals provide indicating-type shut-off valves.

* + - * 1. Valves:

OS&Y gate valves.

Post indicator gate valves.

Less shut-off valves.

* + - * 1. Air-Gap Fitting: ASME A112.1.2, matching backflow preventer connection.
        2. Water Meter:

Remote reading.

GPM.

CFM.

* + - * 1. Valve Monitoring: Integral relief monitor switch.
      1. Designed Flow Configuration:
         1. Horizontal, outdoor.
         2. Horizontal, indoor.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below applies only to Model 475DA

* + - * 1. Vertical, Indoor.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics:
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate:

NPS 2 (DN 50) and smaller: (psig / kPa): \_\_\_\_\_\_.

NPS 2-1/2 (DN 65) and larger: (psig / kPa): \_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Double-check, detector-assembly backflow preventers in paragraph are for low hazard and designed to protect against backsiphonage and backpressure of polluted water into the potable supply. Metered bypass is used to detect leaks and unauthorized use.

* + 1. Double-Check, Detector-Assembly Backflow Preventers NPS 2 to NPS 12 (DN 50 to DN 300):
       1. Basis-of-Design Zurn Industries, LLC; Wilkins:
          1. Model 350ADA.
          2. Model 350ASTDA.
          3. Model 350DA.
          4. Model 450DA.
       2. Standards:
          1. ASME B16.1.
          2. ASSE 1048.
          3. AWWA C510.
          4. AWWA C550.
          5. AWWA C606.
          6. FM Global Approved.
          7. NSF/ANSI 61 Annex G.
          8. NSF / ANSI 372.
          9. UL listed.
       3. Operation: Continuous-pressure applications.
       4. Maximum Working Pressure: 175 psig (1200 kPa).
       5. Valve Body and Access Covers:
          1. Ductile iron, ASTM A536 Grade 4.

Coating: FDA approved epoxy finish.

\*\* NOTE TO SPECIFIER \*\* Choose stainless steel and delete ductile iron above for Model 375ASTDA.

* + - * 1. Stainless steel, 304.
      1. Internal Components: Stainless steel, 300 Series, and NORYL NSF listed.
      2. Springs: Stainless steel, 300 series.
      3. Elastomers: EPDM or Buna Nitrile, FDA approved.
      4. Metered Bypass Backflow Assembly:
      5. End connections:
         1. Flanged, ASME B16.1 Class 125.
         2. Grooved, AWWA C606.
         3. Combination flanged inlet ASME B16.1 Class 125 and grooved outlet AWWA C606.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below does not apply to Model 350DA.

* + - * 1. Combination grooved inlet AWWA C606 and flanged outlet ASME B16.1 Class 125.
      1. Accessories:

\*\* NOTE TO SPECIFIER \*\* For UL and FM approvals provide indicating-type shut-off valves.

* + - * 1. Valves:

OS&Y gate valves.

Butterfly-type with supervisory switch.

Post indicator gate valves.

\*\* NOTE TO SPECIFIER \*\* Not available for 350ASTDA

Less shut-off valves.

* + - * 1. Water Meter:

Remote reading.

GPM.

CFM.

CMM.

\*\* NOTE TO SPECIFIER \*\* Strainer below is only available on Model 450DA

* + - * 1. Strainer Option:

Epoxy coated wye strainer.

Cast iron wye strainer.

* + - 1. Designed Flow Configuration:
         1. Horizontal, outdoor.
         2. Horizontal, indoor.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below not available for Model 450DA

* + - * 1. Vertical, Indoor.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used. Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics:
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range Limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate: (psig / kPa): \_\_\_\_\_\_.
    1. Backflow Preventer Test Kits:
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins.
          1. Model TG-3.
          2. Model TG-5.
       2. Warranty: Five years against material and manufacturing defects.
       3. Hard plastic case.
       4. Factory Calibration certificate.
       5. Laminated instruction sheet.
       6. Maximum Working Pressure: 200psig (1380 kPa).
       7. Gauge Dial: 4 1/2" (114 mm) dial, thermoplastic housing, 0 to 15 psig (0 to 104 kPa). Scale (0.2 P.S.I.D. Increments).
          1. Accuracy of +/- 0.2 psid (descending).
       8. Valves: Pressure differential needle type valves with replaceable seats.

\*\* NOTE TO SPECIFIER \*\* First subparagraph below applies to Model TG-3. The second paragraph below applies to Model TG-5

* + - * 1. Three total.
        2. Five total.
      1. Hoses: Three, Buna nitrile, color coded pressure hoses (5 ft. lengths).
         1. Fittings: Brass, SAE 45-degree flare fittings.
         2. 90 Micron cleanable brass filters.

Intermediate atmospheric-vent backflow preventers are for moderate hazard, boiler fill water lines and constant-pressure applications. They prevent backsiphonage and backpressure of polluted water into the potable supply.

* + 1. Intermediate Atmospheric-Vent Backflow Preventers NPS 1/2 and NPS 3/4 (DN 15 and DN 20):
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins; Model 760.
       2. Standard: ASSE 1012.
       3. Maximum Working Pressure: 175 psi (1207 kPa).
       4. Body: Forged brass.
       5. Elastomers: EPDM or Buna Nitrile FDA approved.
       6. Springs: Stainless steel 300 series.
       7. Union End Connections:
          1. Threaded ANSI B1.20.1.

NPS 1/2 (DN 15).

NPS 3/4 (DN 20).

* + - * 1. Copper: ASNI B16.22.

1/2 inch (13 mm).

3/4 inch (19 mm).

* + - 1. Finish: Rough bronze.

\*\* NOTE TO SPECIFIER \*\*Beverage-Dispensing-Equipment Backflow Preventers are for high hazard. These valves are to be used in potable water lines and prevent backsiphonage and backpressure of contaminated water into the potable supply; continuous pressure applications.

* + 1. Beverage-Dispensing-Equipment Backflow Preventers NPS 3/8 to NPS 1 (DN 10 to DN 25):
       1. Basis-of-Design Zurn Industries, LLC; Wilkins;
          1. Model 375ST (Lead-Free).
          2. Model 740.
       2. Standard:
          1. ANSI B16.1.
          2. ASME A112.1.2.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to model 375STonly.

* + - * 1. ASSE 1013.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to model 740 only.

* + - * 1. ASSE 1022.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375ST only.

* + - * 1. NSF 61 Annex G.
        2. NSF 372.
      1. Maximum Working Pressure:

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to model 740 only.

* + - * 1. 150 psi (1034 kPa).

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375ST only.

* + - * 1. 175 psig (1200 kPa).
      1. Valve Body Housing:

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375ST only.

* + - * 1. Reinforced Nylon, FDA approved.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to model 740 only.

* + - * 1. Stainless Steel 300 series.
      1. Elastomers: Silicon or Buna nitrile, FDA approved.
      2. End Connections:
         1. Threaded ANSI B1.20.1.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to model 740 only.

* + - * 1. Threaded SAE J513.

\*\* NOTE TO SPECIFIER \*\*Subparagraph below applies to models 375ST only.

* + - 1. Accessories:
         1. Ball valves, stainless steel.
         2. Air-Gap Fitting: ASME A112.1.2, matching backflow preventer connection.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics:
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate: (psi / kPa): \_\_\_\_\_\_.

Dual-check-valve backflow preventers in paragraph below are low hazard, constant pressure applications.. These valves are to be used in potable water lines and prevent backsiphonage and backpressure of contaminated water into the potable supply.

* + 1. Dual-Check-Valve Backflow Preventers NPS 1/4 to NPS 1-1/2 (DN 8 to DN 40).
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins.
          1. Model 700XL.
          2. Model 705.
          3. Model 700XLFP.
       2. Standard:
          1. ASSE 1024.

\*\* NOTE TO SPECIFIER \*\*The NSF subparagraph below applies to models 700Xl and 705 only.

* + - * 1. NSF 61 Annex G
        2. NSF 372.

\*\* NOTE TO SPECIFIER \*\*The UL subparagraph below applies to models 700FP only.

* + - * 1. UL Listed.
      1. Maximum Working Pressure: 175 psig (1200 kPa).
      2. Size: (NPS / DN): \_\_\_\_\_\_.
      3. Valve Body:
         1. Cast Bronze ASTM B584

\*\* NOTE TO SPECIFIER \*\*The two subparagraph below apply to model 705 only.

* + - * 1. Reinforced nylon, FDA approved.
        2. Check Modules: Delrin, NSF listed.
      1. Elastomers: Silicon, Buna nitrile, or EPDM, FDA approved.
      2. Springs: Stainless steel 300 series
      3. End Connections:
         1. Threaded ANSI B1.20.1.

\*\* NOTE TO SPECIFIER \*\*The subparagraph below applies to Model 700Xl only.

* + - * 1. Metered thread ANSI B1.20.7.
        2. Copper: ANSI B16.22.

\*\* NOTE TO SPECIFIER \*\*Beverage-Dispensing-Equipment Backflow Preventers are for high hazard. These valves are to be used in potable water lines and prevent backsiphonage and backpressure of contaminated water into the potable supply.

* + 1. Carbonated-Beverage-Dispenser, Dual-Check-Valve Backflow Preventers, NPS 3/8 (DN 10).
       1. Basis-of-Design Zurn Industries, LLC; Wilkins; Model 740.
       2. Standard:
          1. ANSI B16.1.
          2. ASME A112.1.2.
          3. ASSE 1022.
          4. NSF 372.
       3. Operation: Continuous-pressure applications.
       4. Maximum Working Pressure: 150 psi (1034 kPa).
       5. Valve Body Housing: Stainless Steel 300 series.
       6. Elastomers: Silicon or Buna nitrile, FDA approved.
       7. End Connections:
          1. Threaded ANSI B1.20.1.
          2. Threaded SAE J513.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below and schedule water control valves on drawings if more than one type or configuration is used.   
Consult product data and performance curves to determine values for the subparagraphs below.

* + - 1. Capacities and Characteristics :
         1. Pressure Loss; maximum, through middle one-third of flow range: (psig / kPa): \_\_\_\_\_\_.
         2. Size: (NPS / DN): \_\_\_\_\_\_.
         3. Design Flow Rate: (gpm / L/s): \_\_\_\_\_\_.
         4. Selected Unit Flow Range limits: (gpm / L/s): \_\_\_\_\_\_.
         5. Pressure Loss at Design Flow Rate: (psi / kPa): \_\_\_\_\_\_.
  1. VACUUM BREAKERS

\*\*NOTE TO SPECIFIER\*\* Vacuum breakers below are for moderate to high hazard and are to be used for backflow protection or continuous pressure applications. Designed for use in potable water lines.

* + 1. Pipe-Applied, Atmospheric-Type Vacuum Breakers NPS 3/4 to NPS 2 (DN XX to DN XX).
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins; Model 35XL (Lead-Free):
       2. Standard:
          1. ASSE 1001.
          2. NSF 372.
       3. Maximum Working Pressure: 125 psi (862 kPa).
          1. Size: (NPS / DN): \_\_\_\_\_\_.
       4. Body:
          1. Cast bronze ASTM B584.
          2. Cast brass, lead free.
       5. Inlet and Outlet Connections: Threaded ANSI B1.20.1.
       6. Finish:
          1. Rough chrome.
          2. Polished chrome.
       7. Accessories: Bronze wye type strainer.
    2. Hose-Connection Vacuum Breakers, NSP 3/4 (DN 20):
       1. Basis-of-Design Product: Zurn Industries, LLC; Wilkins.
          1. Model BFP-8F.
          2. Model BFP-9.
       2. Standard: ASSE 1011.
       3. Maximum Working Pressure: 125 psi (862 kPa).
       4. Body: Brass, ASTM B16.
       5. Internals:
          1. Stainless steel 300 series.
          2. Brass, ASTM B16.
       6. Outlet Connection: 3/4 inch (19 mm) garden-hose threaded complying with ASME B1.20.7.
       7. Finish: Rough chrome.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below applies to Model BFP-8F.

* + - 1. Manual drain for freeze protection.
    1. Laboratory-Faucet Vacuum Breakers
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins.
          1. Model 730 NPS 3/8 (DN 10).
          2. Model 35XLVCH (Lead-Free) NSP 1/4 (DN 8).
       2. Standard:

The subparagraph below refers to model 35XLVCH.

* + - * 1. ASSE 1001.

The subparagraph below refers to model 730.

* + - * 1. ASSE 1035.
        2. NSF 372.

The subparagraph below refers to model 35XLVCH.

* + - 1. Maximum Working Pressure: 150 psi (1034 kPa).
      2. Body: Cast brass, lead free.
      3. Seat Disc Elastomers: Silicone or Buna Nitrile, FDA Approved.
      4. Inlet and Outlet Connections: Threaded ANSI B1.20.1.
      5. Finish:
         1. Rough chrome.
         2. Polished chrome.

Spill-resistant vacuum breakers are for high hazard, constant-pressure applications and indoor use.

* + 1. Spill-Resistant Vacuum Breakers:
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins; Model 460XL. NPS 3/8 through NPS 1 (DN 10 through DN 25).
       2. Standard:
          1. ASSE 1056.
          2. NSF 61 and 372.
       3. Maximum Working Pressure: 150 psi (1034 kPa).
       4. Valve Body: Cast bronze ASTM B584.
       5. Elastomers: Silicone FDA approved, or Buna Nitrile NSF Listed.
       6. Integrated modular Check and Float Assembly.
          1. Polymers: Polypropylene FDA approved or Delrin.
       7. Accessories:
          1. Valves: Ball type, on inlet and outlet.
  1. TEMPERATURE-ACTUATED, WATER MIXING VALVES

Water-temperature limiting device is thermostatically controlled and designed to mix hot and cold potable water. Suitable for most residential and light commercial applications.

* + 1. Primary, Thermostatic, Water Mixing Valves, NSP 3/8 to NPS 1 (DN 10 to DN 25):
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins; Model ZW1017XL (Lead-Free).
       2. Standard:
          1. ASSE 1017.
          2. NSF 61 Annex G.
          3. NSF 372.
       3. Maximum Pressure Rating: 145 psig (100 kPa).
       4. Size: (NPS / DN): \_\_\_\_\_\_.
       5. Materials:
          1. Body: Bronze ASTM B584.
          2. Internal: Brass ASTM B927.
       6. Piston: Polysufone.
       7. Guide Tube: Noryl GFN2.
       8. Spring and Screen: Stainless steel 300 series.
       9. Temperatures:
          1. Hot water Inlet: 120 to 195 degrees F (49 to 95.5 degrees C).
          2. Cold Water Inlet: 40 to 75 degrees F (4.4 to 23.8 degrees C).
          3. Outlet Range: 95 to 131 degrees F (35 to 55 degrees C).

Accuracy: plus or minus 4 degrees F (2 degrees C)

* + - 1. End Connections:
         1. Barbed.
         2. Compression.
         3. Soldered.
         4. Threaded: FNPT and MNPT.
      2. Ports: 1 hot inlet, 1 cold inlet, 1 mixed outlet.
      3. Valve Finish: Rough bronze.
      4. Mounting:
         1. Exposed.
         2. Cabinet.
      5. Settings:
         1. Tempered-Water Temperature (F / C): \_\_\_\_\_\_.
         2. Tempered-Water Design Flow Rate (gpm / L/s): \_\_\_\_\_\_.
         3. Pressure Drop at Design Flow Rate (psig / kPa): \_\_\_\_\_\_.

Water-temperature limiting device is thermostatically controlled and designed to mix hot and cold potable water. Design to be install3ed at point of use and its primary function is to prevent scalding. Can be used in residential and commercial applications.

* + 1. Individual-Fixture, Water Tempering Valves NSP 3/8 to NPS 1 (DN 10 to DN 25):
       1. Basis-of-Design: Zurn Industries, LLC; Wilkins.
          1. Model ZW3870XLT Single Use.
          2. Model ZW3870XLT-4P Individual Use.
          3. Model ZW1070XL.
       2. Standard:
          1. ASSE 1070.
          2. NSF 61 Annex G.
          3. NSF 372.
       3. Maximum Pressure Rating: 145 psig (100 kPa).
       4. Size: (NPS / DN): \_\_\_\_\_\_.
       5. Materials:
          1. Body: Bronze ASTM B584.
          2. Internals: Brass ASTM B927.
       6. Piston: Polysufone.
       7. Guide Tube: Noryl GFN2.
       8. Spring and Screen: Stainless steel 300 series.
       9. Temperatures:
          1. Hot water Inlet: 120 to 195 degrees F (49 to 95.5 degrees C).
          2. Cold Water Inlet: 40 to 75 degrees F (4.4 to 23.8 degrees C).
          3. Outlet Range: 95 to 115 degrees F (35 to 46 degrees C).

Accuracy: plus or minus 3 degrees F (1.78 degrees C).

* + - 1. End Connections:
         1. Barbed.
         2. Compression.
         3. Soldered.
         4. Threaded: FNPT and MNPT.
      2. Ports:
         1. 1 hot inlet, 1 cold inlet, 1 mixed outlet.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below applies to Model ZW3870XLT-4P.

* + - * 1. 1 hot inlet, 1 cold inlet, 1 mixed outlet, and 1 cold outlet.
      1. Finish: Nickel plating ASTM B456.
      2. Settings:
         1. Tempered-Water Temperature (F / C): \_\_\_\_\_\_.

Field Set.

* + - * 1. Tempered-Water Design Flow Rate (gpm / L/s): \_\_\_\_\_\_.
        2. Pressure Drop at Design Flow Rate (psig / kPa): \_\_\_\_\_\_.
  1. WALL HYDRANTS
     1. Nonfreeze, Anti-Siphon, Automatic-Draining, Wall Hydrants:
        1. Basis-of-Design: Zurn Industries, LLC:
           1. Model Z1300.
           2. Model Z1305.
           3. Model Z1310.
           4. Model Z1315.
           5. Model Z1320XL (Lead free).
           6. Model Z1321XL (Lead free).
           7. Model Z1320XL-EZ (Lead free).
           8. Model Z1320XL Canadian Market (Lead free).
        2. Standard: ASME A112.21.3M
        3. Pressure Rating: 125 psig (860 kPa).
        4. Operation: Loose key.
           1. Number of Operating Keys per Hydrant:

One.

Two.

* + - 1. Casing:
         1. Bronze.
         2. Copper.
      2. Interior Components: Bronze.

\*\* NOTE TO SPECIFIER \*\* The two subparagraphs below refer to models Z1300, Z1305 Z1310, and Z1315,

* + - 1. Operating Rod: Non-turning.
      2. Compression Closure Valve: Free-floating.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to models Z1320XL, Z1321XL, Z1320XL-EZ, and Z1320XL.

* + - 1. 1/2 turn long-life ceramic disc cartridge.
         1. Cartridge removal tool.

\*\* NOTE TO SPECIFIER \*\* The next two subparagraphs do not apply to models Z1305 and Z1315.

* + - 1. Automatic Draining.
      2. Integral BackFlow Preventer.
      3. Wall Clamp.

\*\* NOTE TO SPECIFIER \*\* The next two subparagraphs do not apply to Z1315.  
\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to models Z1310, and Z1321XL,

* + - 1. Faceplate: Stainless steel.
      2. Box and Cover Material:
         1. Nickel Bronze.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to models Z1320XL, and Z1320XL-EZ and as an option for Z1300.,

* + - * 1. Stainless steel.
      1. Cover Finishes:
         1. Polished bronze.
         2. Polished nickel bronze.
         3. Plain Bronze.
         4. Statutory Bronze:

Light.

Medium.

Dark.

* + - 1. Cover Characteristics:
         1. Locking hinge.
         2. The word "WATER" stamped or cast into cover.

\*\* NOTE TO SPECIFIER \*\* For subparagraph below choose a length suitable for the wall thickness. See specific product data for full range of available lengths.

* + - 1. Rod Length (inches / mm): \_\_\_\_\_\_.
      2. Inlet Connections:
         1. NPS 3/4 (DN 20) Female straight IP.
         2. NPS 3/4 (DN 20) Male MPT.
         3. 3/4 inch (19 mm) Female solder connector.
         4. NPS 1 (DN 25) Male straight IP.
      3. Outlet Connections:
         1. 3/4 inch (19 mm) Male hose thread.
         2. 1 inch (25 mm) Male hose thread.
    1. Nonfreeze, Hot- and Cold-Water Wall Hydrant:
       1. Basis-of-Design: Zurn Industries, LLC: Model Z1325.
       2. Standard: ASME A112.21.3M.
       3. Pressure Rating: 125 psig (860 kPa).
       4. Operation: Loose key.
          1. Number of Operating Keys per Hydrant:

One.

Two.

* + - 1. Casing and Interior Components: Bronze.
      2. Operating Rod: Non-turning.
      3. Compression Closure Valve: Free-floating.
      4. Wall Clamp.
      5. Box and Cover Material: Nickel Bronze.
      6. Cover Finishes:
         1. Polished nickel bronze.
         2. Plain nickel bronze.
      7. Cover Characteristics:
         1. Locking hinge.
         2. The word "WATER" stamped or cast into cover.
      8. Integral vacuum breaker on outlet.

\*\* NOTE TO SPECIFIER \*\* For subparagraph below choose a length suitable for the wall thickness. See specific product data for full range of available lengths.

* + - 1. Rod Length (inches / mm): \_\_\_\_\_\_.
      2. End Connections:
         1. Inlet:

NPS 3/4 (DN 20) Female straight IP.

3/4 inch (19 mm) Female solder connector.

NPS 1 (DN 25) Male straight IP.

* + - * 1. Outlet

NPS 3/4 (DN 20) Male Hose connection.

NPS 1 (DN 25) Male Hose connection.

\*\* NOTE TO SPECIFIER \*\* Primarily for interior wall installations

* + 1. Moderate-Climate Wall Hydrants:
       1. Basis-of-Design: Zurn Industries, LLC:
          1. Model Z1327-EZ.
          2. Model Z1332-EZ.
          3. Model Z12350-EZ.
          4. Model Z1330XL (Lead free).
          5. Model Z1333XL (Lead free).
          6. Model Z1335.
          7. Model Z1350.
       2. Standard: ASME A112.21.3M
       3. Pressure rating: 125 psig (860 kPa).
       4. Operation: Loose key.
          1. Number of Operating Keys per Hydrant:

One.

Two.

* + - 1. Body: Bronze
      2. Interior components:
         1. Bronze.

\*\* NOTE TO SPECIFIER \*\* Z1327-EZ.

* + - * 1. Brass.

\*\* NOTE TO SPECIFIER \*\* The two subparagraphs below apply to Model Z1335.

* + - 1. Operation couple: Non-turning.
      2. Compression closure valve: Free-floating.

\*\* NOTE TO SPECIFIER \*\* The two subparagraphs below apply to models Z1327, Z1350, and Z1350-EZ.

* + - 1. Stop valves: Screwdriver actuated, supply line.
      2. Control valves: Hand-operated.

\*\* NOTE TO SPECIFIER \*\* The two subparagraphs below apply to models Z1332-EZ, Z1330XL, and Z1333XL.

* + - 1. Backflow Preventers.
      2. 1/2 turn long-life ceramic disc cartridge.
         1. Cartridge removal tool.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to Model Z1333XL,

* + - 1. Faceplate: stainless steel.
      2. Box and cover material:

\*\* NOTE TO SPECIFIER \*\* The two subparagraphs below refer to Model Z1335,

* + - * 1. Nickel bronze.
        2. Dura-coated cast iron.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to models Z1327-EZ, Z1350, Z1350-EZ, Z1332-EZ

* + - * 1. Stainless steel
      1. Cover Finishes:
         1. Polished bronze.
         2. Polished nickel bronze.
         3. Plain Bronze.
      2. Cover Characteristics:
         1. Locking hinge.
         2. The word "WATER" stamped or cast into cover.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below refers to Model Z1327-EZ, Z1350-EZ.

* + - 1. Mounting Brackets.
      2. Inlet Connections:
         1. NPS 3/4 (DN 20) Female straight IP.
         2. NPS 3/4 (DN 20) Male MPT.
         3. 3/4 inch (19 mm) Female solder connector.
      3. Outlet Connections: 3/4 inch (19 mm) Male hose thread.
  1. GROUND HYDRANTS
     1. Nonfreeze, Encased Outlet Ground Hydrants:
        1. Basis-of-Design: Zurn Industries, LLC:
        2. Model Z1360XL.
        3. Model Z1365.
        4. Model Z1370.
        5. Model Z1375:
        6. Standard: ASME A112.21.3M.
        7. Casing:
           1. Galvanized steel.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below is optional on models Z1360, Z1365, and Z1370 only.

* + - * 1. Bronze.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1360Xl as an optional material and Z1375 with no options.

* + - * 1. Dura-coated cast iron.
      1. Interior Components:

\*\* NOTE TO SPECIFIER \*\* The subparagraph below is optional on models Z1365, Z1370, and 1375.

* + - * 1. Bronze.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1360XL

* + - * 1. Bronze and stainless steel.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1360XL, Z1365, and Z1370.

* + - 1. Operating Rod: Non-turning.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1375.

* + - 1. Operating Coupling.
      2. Compression Closure Valve: Free-floating.
      3. Box Depth
         1. Standard

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1370.

* + - * 1. Deep: For hose storage.
      1. Box and Cover Material:
         1. Bronze.
         2. Dura-coated cast iron.
      2. Cover Finishes:
         1. Polished bronze.
         2. Polished nickel bronze.
         3. Plain Bronze.
      3. Cover Characteristics:
         1. Locking hinge.
         2. Scoriated.
         3. The word "WATER" stamped or cast into cover.
         4. Operating "T" handle key.

Wall Thickness (ft / mm): \_\_\_\_\_\_.

* + - 1. Vacuum Breaker Adapter.
      2. End Connections:
         1. Inlet:

3/4 inch (19 mm) Hose thread, ASME B1.20.7.

1 inch (25 mm) Hose thread, ASME B1.20.7.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1365.

1-1/4 inch (32 mm) Hose thread, ASME B1.20.7.

1-1/2 inch (38 mm) Hose thread, ASME B1.20.7.

2 inch (50 mm) Hose thread, ASME B1.20.7.

* + - * 1. Outlet:

3/4 inch (19 mm) Hose thread, ASME B1.20.7.

1 inch (25 mm) Hose thread, ASME B1.20.7.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to Model Z1365.

1-1/4 inch (32 mm) Hose thread, ASME B1.20.7.

1-1/2 inch (38 mm) Hose thread, ASME B1.20.7.

2 inch (50 mm) Hose thread, ASME B1.20.7.

* 1. POST HYDRANTS
     1. Nonfreeze, Exposed-Head, Draining-Ported Post Hydrants:
        1. Basis-of-Design: Zurn Industries, LLC:
           1. Model Z1388XL.
           2. Model Z1390.
           3. Model Z1395XL.
           4. Model Z1397XL.
        2. Standard: ASME A112.21.3M.
        3. Yard Hydrant, non-freezing.

\*\*NOTE TO SPECIFIER\*\* The subparagraph below applies to Model Z1388XL

* + - 1. Roof Hydrant, non-freezing.

\*\*NOTE TO SPECIFIER\*\* Z1388XL, Z1395XL, and Z1397XL

* + - 1. Operation: Loose-key, lock-option lift handle.

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below applies to Model Z1397XL.

* + - * 1. Slotted links for adjustable locking flow control.
        2. Number of Operating Keys per Hydrant:

One.

Two.

* + - * 1. Head:

Dura-coated cast iron.

* + - 1. Casing:

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below applies to Model Z1390.

* + - * 1. Bronze
        2. Galvanized steel.

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below applies to Model Z1390.

* + - * 1. Casing Guard: Aluminum.
      1. Interior Components:

\*\*NOTE TO SPECIFIER\*\* The subparagraph below applies to Model Z1390.

* + - * 1. Bronze.
        2. Bronze and stainless steel.

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below applies to Model Z1390.

* + - 1. Free Floating compression closure valve:
         1. "T" Operating handle.
         2. Wheel handle.

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below applies to Model Z1388XL.

* + - 1. Roof Support Sleeve: Dura-coated cast iron, anchoring flange, and clamp collar.
      2. Drainage Port:
         1. NPS 1/8 (DN 6) tapped drainage port in housing.

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below applies to Model Z1390.

* + - * 1. NPS 1/4 (DN 8) tapped drainage port in housing.

\*\*NOTE TO SPECIFIER\*\* The subparagraphs below does not apply to Model Z1390.

* + - 1. NPS 3/4 (DN 20) Adaptor for vacuum breaker.
      2. Inlet Connection:
         1. 3/4 inch (19 mm) Hose thread, ASME B1.20.7.

\*\*NOTE TO SPECIFIER\*\* The two subparagraphs below apply to Model Z1390.

* + - * 1. 1-1/4 inch (32 mm) Hose thread, ASME B1.20.7.
        2. 1-1/2 inch (38 mm) Hose thread, ASME B1.20.7.
        3. 2 inch (50 mm) Hose thread, ASME B1.20.7.
      1. Outlet Connection:
         1. 3/4 inch (19 mm) Hose thread, ASME B1.20.7.

\*\*NOTE TO SPECIFIER\*\* The two subparagraphs below apply to Model Z1390.

* + - * 1. 1-1/4 inch (32 mm) Hose thread, ASME B1.20.7.
        2. 1-1/2 inch (38 mm) Hose thread, ASME B1.20.7.
        3. 2 inch (50 mm) Hose thread, ASME B1.20.7.
      1. Drainage Port.
  1. WATER-HAMMER ARRESTERS
     1. Basis-of-Design: Zurn Industries, LLC:
        1. Model 1250XL.
        2. Model Z1700.

\*\*NOTE TO SPECIFIER\*\* See product literature to determine appropriate sizes to specify.

* + 1. Size Unit Capacity: \_\_\_\_\_\_.
    2. Standard:
       1. ASSE 1010.
       2. NSF 372.

Model Z1700 only.

* + - 1. PDI-WH 201.
    1. End Connection: Threaded ASME B1.20.1 MNPT.
       1. NPS 1/2 (DN 13).
       2. NPS 3/4 (DN 19).
       3. NPS 1 (DN 25).
  1. Design Type:

\*\* NOTE TO SPECIFIER \*\* Subparagraph below applies to Model 1250XL.

* + - 1. Copper tubing.
         1. Piston: Acetal polycarbonate, NSF Listed or Brass.
         2. Tailpiece: Brass.
         3. O-rings: Buna Nitrile or EPDM.
         4. Pre-charged and factory sealed.

\*\* NOTE TO SPECIFIER \*\* Subparagraph below applies to Model Z1700.

* + - 1. Stainless steel 304:
         1. Nesting type bellows: Stainless steel 304.
  1. TRAP PRIMER DEVICES
     1. Supply-Type, Trap Primer:
        1. Basis-of-Design: Zurn Industries, LLC:
           1. Model Z1021.
           2. Model Z1022-XL.
        2. Standard: ASSE 1018.
        3. Pressure Rating: 125 psig (860 kPa) minimum.
        4. Body: Bronze or brass.
        5. Inlet and Outlet Connections: NPS 1/2 (DN 15) threaded, union, or solder joint.
        6. Gravity Drain Outlet Connection: NPS 1/2 (DN 15) threaded or solder joint.
        7. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.
     2. Electronic Trap Primer:
        1. Basis-of-Design: Zurn Industries, LLC: Z1020XL.
        2. Standard:
           1. ASSE 1044.
           2. NSF 372.
        3. Cabinet: Galvanized steel box and cover.
           1. Recessed mounted.
           2. Surface mounted.
           3. Vandal-proof cover.
        4. Atmospheric Vacuum Breaker: Brass.
        5. Controls:
           1. Timer: twenty-four hours.
           2. Solenoid valve with strainer: 24 VAC.
           3. Transformer: 120 - 24 VAC.
        6. End Connections:
           1. Inlet:

1/2 inch (13 mm) solder copper inlet.

NPS 1/2 (DN 13) female.

* + - * 1. Outlet Manifold: Anti-scaling.

1/2 inch (13 mm) male PEX connections:

Five outlets.

Ten outlets.

* + 1. Trap Primer Connection Adapter:
       1. Basis-of-Design: Zurn Industries, LLC: Model Z1023.
          1. Pipe Size:

NPS 2 (DN 50).

NPS 3 (DN 75).

NPS 4 (DN100).

* + - * 1. Body: Cast iron:

Dura-coated.

Galvanized.

* + - * 1. Primer Connection:

NPS 1/2 (DN 13) female.

NPS 3/4 (DN 19) female.

1. EXECUTION
   1. EXAMINATION
      1. Verification of Conditions: Examine areas and conditions under which Work is to be performed and identify conditions that may be detrimental to proper or timely completion.
         1. Rough-in of hose connections and stations:
            1. Verify locations.
         2. Walls and partitions:
            1. Suitable thickness.
            2. Construction is fire- and smoke-rated.
            3. Hose-station cabinet framing.
      2. Valve interiors: Clean and free of foreign matter, and corrosion. Remove packing used to prevent disc movement.
         1. Operate valves from fully open to fully closed positions.
         2. Verify guides and seats are clean and free of foreign matter, and corrosion.
      3. Valve Threads: Inspect valve and mating pipe for form and cleanliness.
      4. Mating valve flange faces: inspect for conditions that may cause leaking.
         1. Bolting: Proper size, length, and material.
         2. Gaskets: Proper size and material composition suitable for application; defect and damage free.
      5. Replace defective valves with new valves.
      6. Do not proceed until unsatisfactory conditions have been corrected.
   2. DIELECTRIC FITTINGS:
      1. Install at piping connections of dissimilar metals.
         1. NPS 2 (DN 50) and Smaller:
            1. Nipples.
            2. Unions.
         2. NPS 2-1/2 to NPS 4 (DN 65 to DN 100):
            1. Flanges.
            2. Flange kits.
            3. Nipples.
         3. NPS 5 (DN 125) and Larger: Dielectric flange kits.
   3. VALVE INSTALLATION
      1. Install products in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
         1. Valves in horizontal piping to have stems at or above pipe center.
         2. Valves to be positioned allowing full stem movement.
         3. Valves with threaded connections to have unions at each piece of equipment.
            1. Arrange to allow easy access, service, maintenance, and equipment removal without system shutdown. Provide separate support where necessary.
         4. Valve tags and signage:
            1. Comply with Section 23 05 53 - Identification for HVAC Piping and Equipment "Identification for Plumbing Piping and Equipment" for valve tags, schedules and signs on surfaces concealing valves.
            2. Comply with NFPA 24 as it applies to the piping system in which valves are installed.
      2. Pressure-Reducing Valves:
         1. In vault.
         2. Aboveground between shutoff valves.
            1. Install metered bypass.
      3. AWWA Valves: Install in compliance with AWWA C600 and AWWA M44
   4. DETECTOR CHECK VALVE INSTALLATION
      1. Location:
         1. Vault.
         2. Aboveground.
      2. Verify flow direction for valve installation:
         1. Set valve to allow minimal water flow through bypass meter when major water flow is required.
         2. Install bypass with water meter, gate valves on each side of meter, and check valve downstream from meter.
      3. Supports: Concrete piers; comply with requirements in the following sections:
         1. Comply with requirements found in sections located in Division 03 for cast-in-place Concrete or miscellaneous cast-in-place Concrete."
   5. VACUUM BREAKER INSTALLATION
      1. Install according to requirements of plumbing and health department and authorities having jurisdiction.
         1. Do not install n spaces subject to flooding.
   6. BACKFLOW PREVENTER INSTALLATION
      1. Comply with plumbing and health department requirements of authorities having jurisdiction and manufacturer's written requirements.
      2. Install backflow preventers instead of check valves in potable-water-supply sources.
      3. Install water supplies to equipment and systems to prevent contamination
      4. Backflow preventers with relief drains: Do not install in spaces where flooding may occur.
      5. Do not install bypass piping around backflow preventers.

\*\* NOTE TO SPECIFIER \*\* Revise or delete paragraph below to suit Project.

* + 1. Backflow preventers NPS 2-1/2 (DN 65) and larger: Concrete pier supports.
       1. Comply with requirements found in sections located in Division 03 for cast-in-place Concrete or miscellaneous cast-in-place Concrete."
  1. TEMPERATURE-ACTUATED WATER MIXING VALVE INSTALLATION
     1. Inlets: Install with check stops or shutoff valves
     2. Outlets: Install with shutoff valves.
  2. HYDRANT INSTALLATION
     1. Draining-type post hydrants:
        1. 1 cu. yd. (0.75 cu. m) crushed gravel around drain hole.
        2. Set post hydrants in concrete paving or in concrete block at grade.
     2. Nonfreeze, nondraining post hydrants in Pavement or concrete.
     3. Freeze-resistant yard hydrants with riser pipe: In pavement or concrete.
        1. Do not encase canister in concrete.
  3. WATER HAMMER INSTALLATION
     1. Per PDI-WH 201
  4. FIELD QUALITY CONTROL

\*\* NOTE TO SPECIFIER \*\* Revise this article to suit requirements of authorities having jurisdiction.

* + 1. Test per authorities having jurisdiction.
    2. Piping Tests: prior to covering and after curing and setting of concrete thrust blocks .Fill and pressurize pipeline to test pressure a minimum of 24 hours before testing.
       1. . Use potable water.
    3. Hydrostatic Tests:
       1. Test Pressure: One-and-one-half times the working pressure for two hours.
          1. Increase pressure at increments of 50-psig (350-kPa).

Inspect joints.

* + - * 1. Maintain test pressure for one hour, minimum.
        2. Decrease test pressure to zero psig (zero kPa).
        3. Increase pressure at increments of 50-psig (350-kPa).

Inspect joints.

* + - * 1. Maintain test pressure for one hour, minimum.
        2. Allowable leakage: 2 quarts (1.89 L) per hour per 100 joints.
      1. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.
    1. Prepare test and inspection reports.
  1. IDENTIFICATION
     1. Comply with requirements for identification specified in Section - 3 "Identification for Electrical Systems."
  2. CLEANING

\*\* NOTE TO SPECIFIER \*\* Retain one of the following paragraphs below for piping not connected to potable-water supply.

* + 1. Flush and disinfect piping systems as described by authorities having jurisdiction.
    2. Flush and disinfect piping systems per NFPA 24 for flushing of piping.
       1. Use potable water until contaminants no longer appear at outlets.

\*\* NOTE TO SPECIFIER \*\* Retain one of the following paragraph below for piping connected to potable-water supply.

* + 1. Flush and disinfect piping systems:

\*\* NOTE TO SPECIFIER \*\* Retain one of first three subparagraphs below. If the first subparagraph is used, delete all remaining subparagraphs.

* + - 1. Use procedures described by AWWA C651 or do as follows:
      2. Fill system with water containing a minimum of 50 ppm of chlorine.
         1. Let stand for twenty-four hours.
      3. Fill system with water containing a minimum of 200 ppm of chlorine.
         1. Let stand for three hours.
      4. Flush system with potable water until no chlorine remain in system.
         1. Submit water samples to authorities having jurisdiction for testing.
      5. Repeat procedure if biological examination shows evidence of contamination.
    1. Prepare reports documenting flushing and disinfecting efforts.

END OF SECTION