SECTION 210524 – BACKFLOW PREVENTERS

Revise this Section by deleting and inserting text to meet Project-specific requirements.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Backflow Preventers

* + - 1. SUBMITTALS

Only request submittals needed to verify compliance with Project requirements.

* + - * 1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product data for each type of product: catalog sheets, specifications, and installation instruction. indicating UL or FM approved for each product.

Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

* + - * 1. Shop Drawings: for backflow preventers shall follow guidelines from Cross Connection Control Manual and NFPA 13 standards.

Include Riser detail showing vertical or horizontal Installation with Size, Type, and Manufacture.

Include adequate clearances from floors, ceilings, and walls must provide to access the test cocks and to allow the repair/or removal of the relief valve and check valves.

Include all assemblies showing adequate supports and/or restrained to prevent lateral movement.

Include drainage for all backflow prevention devices for all installations of Double-Check, Backflow-Prevention Assemblies and Reduced-Pressure-Principle Backflow preventers.

Sprinkler Riser detail show a means provided downstream of backflow prevention valves for flow test at system demand. Test is a Forward Flow Test to be conducted as per NFPA 13.

* + - * 1. Field quality-control reports will be completed by a certified tester to test each backflow prevention device to certify completed works of approval completed on a NYS DOH- Form 1013.
				2. Forward Flow Test completed to test system demand. NFPA 13 form, Contractor’s Material and Test Certificate for Above ground piping filled out on report identified as Backflow device forward flow test All tests conducted and witnessed by the Director’s Representative.
			1. QUALITY ASSURANCE

Retain and revise "Regulatory Requirements" Paragraph below to suit Project, or delete if not applicable.

* + - * 1. Regulatory Requirements:

Comply with the NY State Department of Health Sanitary Code for Cross Connection Control, confirming to ASSE Standard 1013, AWWA C-511, USC specification manual for Cross Connection Control, and listed as acceptable in the NY State Department of Health, Environmental Health Manual.

Comply with codes and standards and Local Water Supply Company having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

* + - 1. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For Backflow Prevention Devices to include in emergency, operation, and maintenance manuals.
1. PRODUCTS

Edit which type of backflow prevention device to use.

* + - 1. BACKFLOW PREVENTERS

Verify, with authorities having jurisdiction, whether AWWA, or UL-listed, or FM Global-approved backflow preventers are required.

Copy "Reduced-Pressure-Principle Backflow Preventers" Paragraph below and re-edit for each type of reduced-pressure-principle backflow preventer required.

Reduced-pressure-principle backflow preventers in paragraph are for high hazard and are available in NPS 3/4 to NPS 10.

* + - * 1. Reduced-Pressure-Principle Backflow Preventers:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9242) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Watts

Zurn Industries, LLC

Ames Fire & Waterworks

Approved equivalent.

Standard: [**ASSE 1013**] [**or**] [**AWWA C511].**

Operation: Continuous-pressure applications.

Pressure Loss: [**12 psig**] <**Insert value**> maximum, through middle one-third of flow range.

Size: <**Insert NPS**>.

Design Flow Rate: <**Insert gpm**>.

Selected Unit Flow Range Limits: <**Insert gpm**>.

Pressure Loss at Design Flow Rate: <**Insert psig**> for NPS 2 and smaller; <**Insert psig**> for NPS 2-1/2 and larger.

Body Material: Bronze for NPS 2and smaller; [**cast iron with interior lining complying with AWWA C550 or that is FDA approved**] [**steel with interior lining complying with AWWA C550 or that is FDA approved**] [**stainless steel**] for NPS 2-1/2 and larger.

End Connections: Threaded for NPS 2 and smaller; [**flanged**] <**Insert type**> for NPS 2-1/2 and larger.

Configuration: Designed for [**horizontal, straight through**] [**vertical inlet, horizontal center section, and vertical outlet**] [**vertical**] <**Insert configuration**> flow.

Accessories:

Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; OS&Y gate type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

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

Copy "Double-Check, Backflow-Prevention Assemblies" Paragraph below and re-edit for each type of double-check, backflow-prevention assembly required.

Double-check, backflow-prevention assemblies in paragraph are for low hazard and are available in NPS 3/4 to NPS 10.

* + - * 1. Double-Check, Backflow-Prevention Assemblies:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9242) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Watts

Zurn Industries, LLC

Ames Fire & Waterworks

Approved equivalent.

Standard: [**ASSE 1015**] [**or**] [**AWWA C510].**

Operation: Continuous-pressure applications unless otherwise indicated.

Pressure Loss: [**5 psig**] <**Insert value**> maximum, through middle one-third of flow range.

Size: <**Insert NPS**>.

Design Flow Rate: <**Insert gpm**>.

Selected Unit Flow Range Limits: <**Insert gpm**>.

Pressure Loss at Design Flow Rate: <**Insert psig**> for NPS 2 and smaller; <**Insert psig**> for NPS 2-1/2 and larger.

Body Material: Bronze for NPS 2 and smaller; [**cast iron with interior lining complying with AWWA C550 or that is FDA approved**] [**steel with interior lining complying with AWWA C550 or that is FDA approved**] [**stainless steel**] for NPS 2-1/2 and larger.

End Connections: Threaded for NPS 2 and smaller; [**flanged**] <**Insert type**> for NPS 2-1/2 and larger.

Configuration: Designed for [**horizontal, straight through**] <**Insert configuration**> flow.

Accessories: Ball valves with threaded ends on inlet and outlet of NPS 2 and smaller; OS&Y gate valves with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

Copy "Reduced-Pressure-Detector, Fire-Protection Backflow Preventer Assemblies" Paragraph below and re-edit for each type of reduced-pressure-detector, fire-protection backflow preventer assembly required.

Reduced-pressure-detector, fire-protection backflow preventer assemblies in paragraph are for high hazard and are available in NPS 3 to NPS 10.

* + - * 1. Reduced-Pressure-Detector, Fire-Protection Backflow Preventer Assemblies:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9242) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Watts

Zurn Industries, LLC

Ames Fire & Waterworks

Approved equivalent.

Standards: ASSE 1047 and UL's "Fire Protection Equipment Directory" listing or FM Global "Approval Guide.”

Operation: Continuous-pressure applications.

Pressure Loss: [**12 psig**] <**Insert value**> maximum, through middle one-third of flow range.

Size: <**Insert NPS**>.

Design Flow Rate: <**Insert gpm**>.

Selected Unit Flow Range Limits: <**Insert gpm**>.

Pressure Loss at Design Flow Rate: <**Insert psig**>.

Body Material: [**Cast iron with interior lining complying with AWWA C550 or that is FDA approved**] [**Steel with interior lining complying with AWWA C550 or that is FDA approved**] [**Stainless steel**].

End Connections: Flanged.

Configuration: Designed for [**horizontal, straight through**] [**vertical inlet, horizontal center section, and vertical outlet**] [**vertical**] <**Insert configuration**> flow.

Accessories:

Valves: UL 262 and FM Global "Approval Guide" listing; OS&Y gate type with flanged ends on inlet and outlet.

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

Bypass: With displacement-type water meter, shutoff valves, and reduced-pressure backflow preventer.

Copy "Double-Check, Detector-Assembly Backflow Preventers" Paragraph below and re-edit for each type of double-check, detector-assembly backflow preventer required.

Double-check, detector-assembly backflow preventers in paragraph are for low hazard and are available in NPS 3 to NPS 10.

* + - * 1. Double-Check, Detector-Assembly Backflow Preventers:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9242) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Watts

Zurn Industries, LLC

Ames Fire & Waterworks

Approved equivalent.

Standards: ASSE 1048 and UL's "Fire Protection Equipment Directory" listing or FM Global "Approval Guide.”

Operation: Continuous-pressure applications.

Pressure Loss: [**5 psig**] <**Insert value**> maximum, through middle one-third of flow range.

Size: <**Insert NPS**>.

Design Flow Rate: <**Insert gpm**>.

Selected Unit Flow Range Limits: <**Insert gpm**>.

Pressure Loss at Design Flow Rate: <**Insert psig**>.

Body Material: [**Cast iron with interior lining complying with AWWA C550 or that is FDA approved**] [**Steel with interior lining complying with AWWA C550 or that is FDA approved**] [**Stainless steel**].

End Connections: Flanged.

Configuration: Designed for [**horizontal, straight through**] [**vertical inlet, horizontal center section, and vertical outlet**] [**vertical**] <**Insert configuration**> flow.

Accessories:

Valves: UL 262 and FM Global "Approval Guide" listing; OS&Y gate type with flanged ends on inlet and outlet.

Bypass: With displacement-type water meter, shutoff valves, and reduced-pressure backflow preventer.

Copy "Backflow Preventer Test Kits" Paragraph below and re-edit for each type of backflow preventer test kit required.

* + - * 1. Backflow Preventer Test Kits:

Description: Factory calibrated, with gages, fittings, hoses, and carrying case with test-procedure instructions.

* + - 1. INSTALLATION
				1. Install backflow preventers in each water supply to Fire sprinkler systems and to connection between antifreeze system and the wet-pipe system that may be sources of contamination. Comply with authorities having jurisdiction.

Locate and install as per guidelines from cross connection control manual and the manufactures instructions.

Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe-to-floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are unacceptable for this application.

Do not install bypass piping around backflow preventers.

* + - 1. LABELING AND IDENTIFYING
				1. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:

Coordinate list below with products retained in Part 2.

Reduced-Pressure-Principle Backflow Preventers.

Double-Check, Backflow-Prevention Assemblies.

Reduced-Pressure-Detector, Fire Protection Backflow Preventer Assemblies.

Double-Check, Detector Assembly Backflow Preventers.

* + - * 1. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Section 210553 "Identification for Fire Suppression Piping and Equipment."
			1. FIELD QUALITY CONTROL

Retain "Perform the following tests and inspections" Paragraph below to require Contractor to perform tests and inspections.

* + - * 1. Perform the following tests and inspections:

Test each [ **Reduce-Pressure-Principle Backflow Preventer**] [**Double-Check Backflow** **Prevention Assembly**] [ **Reduced-Pressure-Detector**] [**Fire Protection** **Backflow Assemblies**] [**and**] [**Double-Check Detector Assembly Backflow Preventers**] <**Insert type**> according to authorities having jurisdiction and the device's reference standard.

* + - * 1. Backflow prevention devices will be considered defective if they do not pass tests and inspections.
				2. Prepare test and inspection reports.

END OF SECTION 210524