SECTION 331419 - VALVES AND HYDRANTS FOR WATER UTILITY SERVICE

This Section specifies fire hydrants and valves for installation in water mains.

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

Valves.

Valve boxes.

Fire hydrants.

* + - * 1. Related Requirements:

List other Sections directly related to or affecting Work of this Section. Include Sections specifying information expected to be found in this Section as well as Sections required to describe complete system or assembly requirements.

Section 033000 - Cast-in-Place Concrete: Concrete for thrust restraints.

Section 099114 - Exterior Painting: Exterior finish for fire hydrants.

Section 330110.58 - Disinfection of Water Utility Piping Systems: Requirements for flushing and disinfecting.

Section 330509.33 - Thrust Restraint for Utility Piping: Thrust restraints as required by this Section.

Section 331413 - Public Water Utility Distribution Piping: Pressure testing of valves and hydrants.

Section 331416 - Site Water Utility Distribution Piping: Pressure testing of valves and hydrants.

Section 331417 - Site Water Service Utility Laterals: Piping, trenching, backfilling, and compaction requirements.

* + - 1. REFERENCE STANDARDS

List reference standards included within text of this Section, with designations, numbers, and complete document titles.

LEED requires compliance with specific editions of referenced standards.. Consider including publication dates for referenced standards in this Section to ensure that correct standard is used for LEED compliance.

* + - * 1. American Water Works Association:

AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.

AWWA C502 - Dry-Barrel Fire Hydrants.

AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.

AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

* + - * 1. National Fire Protection Association:

NFPA 291 - Recommended Practice for Fire Flow Testing and Marking of Hydrants.

* + - * 1. NSF International:

NSF 61 - Drinking Water System Components - Health Effects.

NSF 372 - Drinking Water System Components - Lead Content.

* + - 1. COORDINATION
         1. Coordinate Work of this Section with installation of water mains.
      2. 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: Submit manufacturer information regarding component materials, fittings, assembly and parts diagram, and accessories.
        5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

Include separate paragraphs for additional certifications.

* + - * 1. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
        2. Source Quality-Control Submittals: Indicate results of [**shop**] [**factory**] tests and inspections.
        3. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
        4. Qualifications Statements:

Coordinate following subparagraphs with requirements specified in QUALIFICATIONS Article.

Submit qualifications for manufacturer and installer.

Submit manufacturer's approval of installer.

Remove paragraph if not LEED project.

* + - 1. SUSTAINABLE DESIGN SUBMITTALS
         1. Section 018113 - LEED Documentation Requirements: Requirements for sustainable design submittals.
         2. Manufacturer's Certificate:

Certify that products meet or exceed specified sustainable design requirements.

Insert material certifications list below to suit products specified in this Section and Project sustainable design requirements. Specific certificate submittal and supporting data requirements are specified in Section 018113.

Materials Resources Certificates:

Certify source and origin for [**salvaged**] [**and**] [**reused**] products.

Certify recycled material content for recycled content products.

Certify source for regional materials and distance from Project Site.

* + - * 1. Product Cost Data:

Submit cost of products to verify compliance with Project sustainable design requirements.

Exclude cost of labor and equipment to install products.

Provide cost data for following products:

Edit list of material cost data below to suit products specified in this Section and Project sustainable design requirements. Specific cost data requirements are specified in Section 018113.

Salvaged, refurbished, and reused products.

Products with recycled material content.

Regional products.

<**\_\_\_\_\_\_\_\_**>.

* + - 1. CLOSEOUT SUBMITTALS
         1. Section 017716 - Contract Closeout: Requirements for submittals.
         2. Project Record Documents: Record actual locations of [**valves**] [**and**] [**hydrants**].
      2. MAINTENANCE MATERIAL SUBMITTALS
         1. Tools: Furnish [**one tee wrench**] [**<\_\_\_\_\_\_\_\_> tee wrenches**] of required length to Director’s Representative.
      3. QUALITY ASSURANCE

Include this Article to specify compliance with overall reference standards affecting products and installation included in this Section.

* + - * 1. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372.
        2. Cast manufacturer's name, pressure rating, and year of fabrication into valve body.
        3. Perform Work according to [**NYSDOH**] [**AWWA**] standards.
        4. Comply with AWWA M17 standard.
        5. For UL Listed or FM Global-Approved Fire Hydrants, comply with NFPA 24

Include following paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain <**\_\_\_\_\_\_\_\_**> [**copy**] [**copies**] of each standard affecting Work of this Section on Site.
      1. QUALIFICATIONS

Coordinate following paragraphs with requirements specified in SUBMITTALS Article.

* + - * 1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience.
        2. Installer: Company specializing in performing Work of this Section with minimum [**three**] <**\_\_\_\_\_\_\_\_**> years' [**documented**] experience [**and approved by manufacturer**].
      1. DELIVERY, STORAGE, AND HANDLING
         1. Section 016500 - Materials and Equipment: Requirements for transporting, handling, storing, and protecting products.
         2. Delivery:

Seal valve and hydrant ends to prevent entry of foreign matter.

Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

* + - * 1. Store materials according to manufacturer instructions.
        2. Protection:

Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

Provide additional protection according to manufacturer instructions.

1. PRODUCTS
   * + 1. VALVES
          1. Performance and Design Criteria:

Pressure Rating:

12-inch Diameter and Smaller: 200 psig.

14-inch Diameter and Larger: 150 psig.

End Connections: [**Mechanical joint**].

Furnish valves of diameters 16 inches and larger with bypass valves and gear operators.

Coatings:

Comply with AWWA C550.

Application: Interior and exterior.

* + - * 1. Resilient-Wedge Gate Valves:

[Manufacturers](http://www.specagent.com/LookUp/?ulid=8769&mf=04&src=wd):

Kennedy Valve Company.

Clow Valve Company.

Mueller Water Products.

Approved equivalent.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above.

Description:

Comply with AWWA C509.

Body: [**Ductile iron**] <**\_\_\_\_\_\_\_\_**>.

Seats: Resilient.

Stem:

Type: Non-rising.

Material: Bronze.

Operation:

Square operating nut.

Opening Direction: Counterclockwise.

* + - 1. FIRE HYDRANTS
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=13279&mf=04&src=wd):

Kennedy Valve Company.

Clow Valve Company.

Mueller Water Products.

Approved equivalent.

Insert descriptive specifications below to identify Project requirements and to eliminate conflicts with products specified above.

* + - * 1. Dry-Barrel, Breakaway Type:

Comply with AWWA C502.

Body: Cast iron.

Valve: Compression type.

Burial Depth: As indicated on Drawings.

Inlet Connection Size: 6 inches.

Valve Opening: 5-1/4 inches in diameter.

End Connections: [**Mechanical joint**] [**Bell**].

Bolts and Nuts: [**Galvanized steel**] [**Stainless steel**] [**Bronze**].

Interior Coating: Comply with AWWA C550.

Opening Direction: [**Counterclockwise**] [**Clockwise**].

* + - * 1. Hose Connections:

One pumper, two hose nozzles.

Design engineer shall coordinate with the OGS PM, Facility, and/or local fire department to confirm preferred nozzle type and thread size.

Nozzle type

Thread size

Attach nozzle caps by separate chains.

* + - * 1. Finishes:

Primer and two coats of rust inhibitive, high gloss alkyd enamel as [**specified in Section 099114 - Exterior Painting**] [**recommended by the manufacturer**].

Color: Comply with requirements of [**Facility**] [local **fire department**] [**NFPA 291**] <**\_\_\_\_\_\_\_\_**>. Coordinate with the Director’s Representative.

* + - 1. VALVE BOXES
         1. [Manufacturers](http://www.specagent.com/LookUp/?ulid=9270&mf=04&src=wd):

EJ Prescott.

Star Pipe Products.

Approved equivalent.

* + - * 1. Description:

12-inch Diameter Valves and Smaller:

Material: Cast iron.

Type: Two piece; screw.

Valves Larger than 12-inch Diameter:

Material: Cast iron.

Type: Three piece; screw.

Base: Round.

Lid Inscription: WATER <**\_\_\_\_\_\_\_\_**>.

* + - 1. ACCESSORIES
         1. Thrust Restraints: As specified in Section 330509.33 - Thrust Restraint for Utility Piping.
         2. Valve Box Aligner: High-strength plastic device designed to automatically center valve box base and to prevent it from shifting off center during backfilling.

1. EXECUTION
   * + 1. EXAMINATION
          1. Determine exact location and size of valves from Drawings.
          2. Identify required lines, levels, contours, and datum locations.
          3. Verify that elevations [**of existing facilities**] prior to excavation and installation of [**valves**] [**and**] [**hydrants**] are as indicated on Drawings.
       2. PREPARATION
          1. Locate, identify, and protect from damage utilities to remain.
          2. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.

Notify Director’s Representative not less than <**\_\_\_\_\_\_\_\_**> days in advance of proposed utility interruption.

Do not proceed without written permission from Director’s Representative.

* + - 1. INSTALLATION
         1. Perform trench excavation, backfilling, and compaction as specified in Section [**310000 - Earthwork**].
         2. Install [**valves**] [**and**] [**hydrants**] in conjunction with pipe laying.
         3. Provide buried valves with valve boxes installed flush with finished grade.
         4. Provide support blocking and drainage gravel while installing fire hydrants; do not block drain hole.
         5. Orientation:

Set [**valves**] [**and**] [**hydrants**] plumb.

Set fire hydrants with pumper nozzle facing roadway.

Set fire hydrants with centerline of pumper nozzle 18 inches above finished grade and with safety flange not more than 6 inches nor less than 2 inches above grade.

* + - * 1. After main-line pressure testing, flush fire hydrants and check for proper drainage.
        2. Installation Standards: Install Work according to [**AWWA M17**] <**\_\_\_\_\_**> standards.
        3. For UL-Listed or FM Global-Approved Fire Hydrants, comply with NFPA 24.
        4. Disinfection of Water Piping System: Flush and disinfect [**valves**] [**and**] [**hydrants**] with water mains as specified in Section 330110.58 - Disinfection of Water Utility Piping Systems.
      1. FIELD QUALITY CONTROL
         1. Testing: Pressure test [**valves**] [**and**] [**hydrants**] with water mains as specified in Section [**331413 - Public Water Utility Distribution Piping**] [**331416 - Site Water Utility Distribution Piping**].

END OF SECTION 331419