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SECTION 210523 - GENERAL-DUTY VALVES FOR WATER-BASED FIRE-SUPPRESSION PIPING

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

Trim and drain valves.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project.

* + - * 1. NRS: Nonrising stem.
        2. OS&Y: Outside screw and yoke.
        3. SBR: Styrene-butadiene rubber.
      1. ACTION SUBMITTALS
         1. Product Data: For each type of valve.
      2. DELIVERY, STORAGE, AND HANDLING
         1. Prepare valves for shipping as follows:

Protect internal parts against rust and corrosion.

Protect threads, flange faces, and weld ends.

Set valves open to minimize exposure of functional surfaces.

* + - * 1. Use the following precautions during storage:

Maintain valve end protection.

Store valves indoors and maintain at higher-than-ambient dew point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

* + - * 1. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use operating handles or stems as lifting or rigging points.
        2. Protect flanges and specialties from moisture and dirt.

1. PRODUCTS
   * + 1. SOURCE LIMITATIONS
          1. Obtain each type of valve from single manufacturer.
       2. PERFORMANCE REQUIREMENTS

Retain "UL Listed" or "FM Global Approved" Paragraph below, or both, depending on requirements of authorities having jurisdiction at Project location. Unless stated otherwise, all manufacturers listed in the product types below supply valves that are both UL listed and FM Global approved. See "Codes" Article in the Evaluations for more information.

Consult authorities having jurisdiction for Project to verify acceptable valve materials and other products. Fire codes have different requirements for acceptable valve materials.

* + - * 1. UL Listed: Valves shall be listed in UL's "Online Certifications Directory" under the headings listed below and shall bear UL mark:

Fire Main Equipment: HAMV - Main Level.

Indicator Posts, Gate Valve: HCBZ - Level 1.

Ball Valves, System Control: HLUG - Level 3.

Butterfly Valves: HLXS - Level 3.

Check Valves: HMER - Level 3.

Gate Valves: HMRZ - Level 3.

Sprinkler System and Water Spray System Devices: VDGT - Main Level.

Valves, Trim and Drain: VQGU - Level 1.

* + - * 1. FM Global Approved: Valves shall be listed in its "Approval Guide," under the headings listed below:

Automated Sprinkler Systems:

Indicator posts.

Valves.

Gate valves.

Check valves.

Miscellaneous valves.

* + - * 1. ASME Compliance:

ASME B1.20.1 for threads for threaded-end valves.

ASME B16.1 for flanges on iron valves.

ASME B31.9 for building services piping valves.

* + - * 1. AWWA Compliance: Comply with AWWA C606 for grooved-end connections.
        2. NFPA Compliance for Valves:

Comply with NFPA 13, NFPA 14, NFPA 20, and NFPA 24.

Caution: Fire-protection valves have a minimum pressure rating of 175 psig (1030 kPa), which drops to 150 psig (1200 kPa) for valves larger than NPS 12 (DN 300). Revise pressure ratings in valve articles if valves with higher ratings are required. Verify pressure requirements for large valves. Coordinate minimum pressure ratings with Drawings and system-pressure requirements.

* + - * 1. Valve Pressure Ratings: Not less than the minimum pressure rating indicated or higher, as required by system pressures.
        2. Valve Sizes: Same as upstream piping unless otherwise indicated.
        3. Valve Actuator Types:

Worm-gear actuator with handwheel for quarter-turn valves, except for trim and drain valves.

Handwheel: For other than quarter-turn trim and drain valves.

Handlever: For quarter-turn trim and drain valves NPS 2 and smaller.

* + - 1. TRIM AND DRAIN VALVES

Trim and drain valves are UL listed and are NPS 2 (DN 50) and smaller. No UL standard exists for these valves. Some valves used for trim and drain systems may be approved by FM Global, but no specific FM Global trim and drain category exists where these valves are located. See the Evaluations for more information.

* + - * 1. Ball Valves:

Retain "Basis-of-Design Product" Subparagraph and list of manufacturers below to identify a specific product or a comparable product from manufacturers listed.

Basis-of-Design Product: Subject to compliance with requirements, provide **Zurn Industries, LLC; Model 850XL** or comparable product by one of the following:

<**Insert manufacturer's name**>

Description:

Pressure Rating: [**175 psig**] [**250 psig**] [**300 psig**] <**Insert value**>.

Body Design: Two piece.

Body Material: Forged brass or bronze.

Port size: Full or standard.

Seats: PTFE.

Stem: Bronze or stainless steel.

Ball: Chrome-plated brass.

Actuator: Handlever.

End Connections for Valves NPS 1 through NPS 2-1/2: Threaded ends.

End Connections for Valves NPS 1-1/4 and NPS 2-1/2: Grooved ends.

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
          2. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
          3. Examine threads on valve and mating pipe for form and cleanliness.
          4. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
          5. Do not attempt to repair defective valves; replace with new valves.
       2. INSTALLATION, GENERAL
          1. Comply with requirements in the following Sections for specific valve-installation requirements and applications:

Section 211000 "Water-Based Fire-Suppression Systems" for application of valves in fire-suppression standpipes; wet-pipe, fire-suppression sprinkler systems; and dry-pipe, fire-suppression sprinkler systems.

Section 211339 "Foam-Water Systems" for application of valves in AFFF piping.

Section 331415 "Site Water Distribution Piping" for application of valves in fire-suppression water-service piping.

* + - * 1. Install listed fire-protection shutoff valves supervised-open, located to control sources of water supply, except from fire-department connections. Install permanent identification signs, indicating portion of system controlled by each valve.
        2. Install double-check valve assembly in each fire-protection water-supply connection.
        3. Install valves having threaded connections with unions at each piece of equipment arranged to allow easy access, service, maintenance, and equipment removal without system shutdown. Provide separate support where necessary.
        4. Install valves in horizontal piping with stem at or above the pipe center.
        5. Install valves in position to allow full stem movement.
        6. Install valve tags. Comply with requirements in Section 210553 "Identification for Fire-Suppression Piping and Equipment" for valve tags and schedules and signs on surfaces concealing valves; and the NFPA standard applying to the piping system in which valves are installed. Install permanent identification signs indicating the portion of system controlled by each valve.

END OF SECTION 210523