

SECTION 22 4500 - EMERGENCY PLUMBING FIXTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Emergency showers.
 - 2. Eye/face wash equipment.
 - 3. Water-tempering equipment.

1.3 DEFINITIONS

- A. Accessible Fixture: Emergency plumbing fixture that can be approached, entered, and used by people with disabilities.
- B. Plumbed Emergency Plumbing Fixture: Fixture with fixed, potable-water supply.
- C. Tepid: Moderately warm, between 60 – 100° F.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include flow rates and capacities, furnished specialties, and accessories.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: Submit certificates of performance testing specified in "Source Quality Control" Article.
- B. Field quality-control test reports.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For emergency plumbing fixtures to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. ANSI Standard: Comply with ANSI Z358.1, "Emergency Eyewash and Shower Equipment."
- C. NSF Standard: Comply with NSF 61, "Drinking Water System Components - Health Effects," for fixture materials that will be in contact with potable water.
- D. Regulatory Requirements: Comply with requirements in ICC/ANSI A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; for plumbing fixtures for people with disabilities.

PART 2 - PRODUCTS

2.1 EMERGENCY SHOWERS

- A. Freestanding, Plumbed Emergency Showers, <Insert drawing designation>:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. WaterSaver.
 - 2. Capacity: Not less than 20 gpm (76 L/min.) for at least 15 minutes.
 - 3. Supply Piping: NPS 1-1/4 [galvanized steel] [chrome-plated brass or stainless steel] [PVC] with flow regulator and stay-open control valve.
 - 4. Control-Valve Actuator: [Pull rod] [Foot treadle] <Insert actuator>.
 - 5. Shower Head: 8-inch- (200-mm-) minimum diameter, [chrome-plated brass, stainless steel, or plastic] <Insert material>.
 - 6. Mounting: Pedestal.
- B. Off-Floor, Plumbed Emergency Showers, <Insert drawing designation>:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. WaterSaver.
 - 2. Capacity: Not less than 20 gpm (76 L/min.) for at least 15 minutes.
 - 3. Supply Piping: NPS 1-1/4 (DN 25) [galvanized steel] [chrome-plated brass or stainless steel] [PVC] with flow regulator and stay-open control valve.
 - 4. Control-Valve Actuator: Pull rod.
 - 5. Shower Head: 8-inch- (200-mm-) minimum diameter, [chrome-plated brass, stainless steel, or plastic] <Insert material>.
 - 6. Mounting: [Horizontal from wall] [Vertical from ceiling] and supported from piping.
- C. Freeze-Protected, Plumbed Emergency Showers, <Insert drawing designation>:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. WaterSaver.
2. Capacity: Not less than 20 gpm (76 L/min.) for at least 15 minutes.
3. Supply Piping: NPS 1-1/4 (DN 32) galvanized steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: Pull rod.
5. Shower Head: 8-inch- (200-mm-) minimum diameter, [**chrome-plated brass, stainless steel, or plastic**] <Insert material>.
6. Heating System: [**120**] [**240**]-V ac electric, and insulation with protective jacket.
7. Mounting: Pedestal.

2.2 EYE/FACE WASH EQUIPMENT

- A. Standard, Wall-Mounted, Plumbed, Eye/Drench Hose Wash Units, <Insert drawing designation>:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. WaterSaver.
 2. Capacity: Not less than 3.0 gpm (11.4 L/min.) for at least 15 minutes.
 3. Supply Piping: NPT 3/8" male swivel-type inlet, chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 4. Drench Hose: Hand-held spray head with squeeze-handle actuation, locking clip, and 8 ft. stainless steel hose.
 5. Spray-Head Assembly: Two receptor-mounted spray heads with dust covers.
 6. Mounting: Wall bracket.
 7. Special Construction: Comply with ANSI Z358.1-2014.

2.3 WATER-TEMPERING EQUIPMENT

- A. Hot- and Cold-Water, Water-Tempering Equipment, TMV-2:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. WaterSaver.
 2. Description: Factory-fabricated equipment with thermostatic mixing valve.
 - a. AP3600 Thermostatic Mixing Valve: Designed to provide 85 deg F (29 deg C) tepid, potable water at emergency plumbing fixtures, to maintain temperature at plus or minus 5 deg F (3 deg C) throughout required 15-minute test period, and in case of unit failure to continue cold-water flow, with union connections, controls, metal piping, and corrosion-resistant enclosure. ANSI 358.1-2014 compliant.
 - b. Supply Connections: For hot and cold water.

2.4 SOURCE QUALITY CONTROL

- A. Certify performance of emergency plumbing fixtures by independent testing organization acceptable to authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for water and waste piping systems to verify actual locations of piping connections before plumbed emergency plumbing fixture installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EMERGENCY PLUMBING FIXTURE INSTALLATION

- A. Assemble emergency plumbing fixture piping, fittings, control valves, and other components.
- B. Install fixtures level and plumb.
- C. Fasten fixtures to substrate.
- D. Install shutoff valves in water-supply piping to fixtures. Use ball, gate, or globe valve if specific type valve is not indicated. Install valves chained or locked in open position if permitted. Install valves in locations where they can easily be reached for operation. Comply with requirements for valves specified in Section 220523 "General-Duty Valves for Plumbing Piping."
 - 1. Exception: Omit shutoff valve on supply to emergency equipment if prohibited by authorities having jurisdiction.
- E. Install dielectric fitting in supply piping to emergency equipment if piping and equipment connections are made of different metals. Comply with requirements for dielectric fittings specified in Section 221116 "Domestic Water Piping."
- F. Install thermometers in supply and outlet piping connections to water-tempering equipment. Comply with requirements for thermometers specified in Section 220519 "Meters and Gages for Plumbing Piping."
- G. Install trap and waste piping on drain outlet of emergency equipment receptors that are indicated to be directly connected to drainage system. Comply with requirements for waste piping specified in Section 221316 "Sanitary Waste and Vent Piping."
- H. Install indirect waste piping on drain outlet of emergency equipment receptors that are indicated to be indirectly connected to drainage system. Comply with requirements for waste piping specified in Section 221316 "Sanitary Waste and Vent Piping."
- I. Install escutcheons on piping wall and ceiling penetrations in exposed, finished locations. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."
- J. Fill self-contained fixtures with flushing fluid.

3.3 CONNECTIONS

- A. Connect cold-water-supply piping to plumbed emergency plumbing fixtures not having water-tempering equipment. Comply with requirements for cold-water piping specified in Section 221116 "Domestic Water Piping."

- B. Connect hot- and cold-water-supply piping to hot- and cold-water, water-tempering equipment. Connect output from water-tempering equipment to emergency plumbing fixtures. Comply with requirements for hot- and cold-water piping specified in Section 221116 "Domestic Water Piping."
- C. Directly connect emergency plumbing fixture receptors with trapped drain outlet to sanitary waste and vent piping. Comply with requirements for waste piping specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Indirectly connect emergency plumbing fixture receptors without trapped drain outlet to sanitary waste or storm drainage piping.
- E. Where installing piping adjacent to emergency plumbing fixtures, allow space for service and maintenance of fixtures.

3.4 IDENTIFICATION

- A. Install equipment nameplates or equipment markers on emergency plumbing fixtures and equipment and equipment signs on water-tempering equipment. Comply with requirements for identification materials specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.5 FIELD QUALITY CONTROL

- A. Mechanical-Component Testing: After plumbing connections have been made, test for compliance with requirements. Initial test shall be performed in the presence of a plumbing shop representative in FMO. Verify ability to achieve indicated capacities.
- B. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection.
 - 2. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation.
 - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Emergency plumbing fixtures and water-tempering equipment will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

3.6 ADJUSTING

- A. Adjust or replace fixture flow regulators for proper flow.
- B. Adjust equipment temperature settings.

END OF SECTION 22 4500

NORTHWESTERN UNIVERSITY
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FOR: _____
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