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SECTION 224500 - EMERGENCY PLUMBING FIXTURES

TIPS:

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Emergency showers.
2. Eyewash equipment.
3. Eye/face wash equipment.
4. Combination units.
5. Supplemental equipment.
6. Water-tempering equipment.

1.2 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. Self-Contained Emergency Plumbing Fixture: Fixture with flushing-fluid-solution supply.
- D. Tepid: Moderately warm.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include flow rates and capacities, furnished specialties, and accessories.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and **[mounting]** **[attachment]** details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
 - 4. Include diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

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

1.5 CLOSEOUT SUBMITTALS

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

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Flushing-Fluid Solution: Separate lot and equal to at least **[200]** **<Insert number>** percent of amount of solution installed for each self-contained unit.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- 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. ISEA Standard: Comply with ISEA Z358.1.
- C. NSF Standard: Comply with NSF 61 and NSF 372, for fixture materials that will be in contact with potable water.
- D. Regulatory Requirements: Comply with requirements in ICC A117.1, [**Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act";**] for plumbing fixtures for people with disabilities.

2.2 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. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
 - 2. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes.
 - 3. Supply Piping: [**NPS 1 (DN 25)**] [**NPS 1-1/4 (DN 32)**] [**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. Acorn Safety.
 - b. Bradley Corporation.

- c. Chicago Faucets; Geberit Company.
 - d. Encon Safety Products.
 - e. Guardian Equipment Co.
 - f. Haws Corporation.
 - g. Sellstrom Manufacturing Company.
 - h. Speakman Company.
 - i. Stingray Systems LLC.
 - j. WaterSaver Faucet Co.
 - k. **<Insert manufacturer's name>**.
2. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes.
 3. Supply Piping: **NPS 1 (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. B-L-S Industries, Inc.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Speakman Company.
 - g. **<Insert manufacturer's name>**.
 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; insulation enclosed in a protective jacket.
 7. Mounting: Pedestal.

2.3 EYEWASH EQUIPMENT

- A. Standard, Freestanding, Plumbed Eyewash Units, **<Insert drawing designation>**:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.

- c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. Stingray Systems LLC.
 - i. WaterSaver Faucet Co.
 - j. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
 3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: [**Paddle**] [**Treadle**] **<Insert actuator>**.
 5. Spray-Head Assembly: Two receptor-mounted spray heads.
 6. Receptor: [**Chrome-plated brass or stainless steel**] [**Plastic**] bowl.
 7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.
 8. Drain Piping: Include galvanized-steel indirect connection to drainage system.
 9. Mounting: Pedestal.

B. Accessible, Freestanding, Plumbed Eyewash Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. WaterSaver Faucet Co.
 - f. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: [**Paddle**] **<Insert actuator>**.
5. Spray-Head Assembly: Two receptor-mounted spray heads.
6. Receptor: [**Chrome-plated brass or stainless steel**] [**Plastic**] bowl.
7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.

8. Mounting: Offset pedestal.
9. Special Construction: Comply with ICC A117.1.

C. Standard, Wall-Mounted, Plumbed Eyewash Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. Stingray Systems LLC.
 - i. WaterSaver Faucet Co.
 - j. <Insert manufacturer's name>.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: [**Paddle**] <Insert actuator>.
5. Spray-Head Assembly: Two receptor-mounted spray heads.
6. Receptor: [**Chrome-plated brass or stainless steel**] <Insert material> bowl.
7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.
8. Mounting: Wall bracket.

D. Accessible, Wall-Mounted, Plumbed Eyewash Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Speakman Company.
 - g. <Insert manufacturer's name>.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.

4. Control-Valve Actuator: [**Paddle**] <Insert actuator>.
5. Spray-Head Assembly: Two receptor-mounted spray heads.
6. Receptor: [**Chrome-plated brass or stainless steel**] <Insert material> bowl.
7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.
8. Mounting: Wall bracket.
9. Special Construction: Comply with ICC A117.1.

E. Sink, Fixed-Position, Plumbed Eyewash Unit, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. <Insert manufacturer's name>.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: Paddle.
5. Spray-Head Assembly: Two spray heads positioned over sink.
6. Mounting: Attached to sink receptor.

F. Sink, Swivel-Type, Plumbed Eyewash Unit, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. <Insert manufacturer's name>.

2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: Movement of spray-head assembly to position over sink.
5. Spray-Head Assembly: Two spray heads with offset piping.
6. Mounting: Deck next to sink.

G. Portable, Self-Contained Eyewash Units, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. Haws Corporation.
 - e. Sellstrom Manufacturing Company.
 - f. WaterSaver Faucet Co.
 - g. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Pressure Tank: [**10 gal. (38 L)**] **<Insert value>**, stainless steel, cylindrical, with pressure gage, and suitable for on-floor installation.
4. Flushing Fluid: Medically acceptable solution manufactured and labeled in accordance with applicable regulations.
5. Spray-Head Assembly: Chrome-plated copper alloy or stainless steel piping with flow regulator; paddle-actuated, stay-open control valve; and two spray heads mounted on tank.
6. Drench Hose: Hand-held spray head with squeeze-handle actuation and hose attached to tank.

H. Standard, Self-Contained Eyewash Units, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Fend-all.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Gravity Tank: [**14 gal. (53 L) minimum**] **<Insert value>**, plastic, and suitable for shelf mounting.

4. Flushing Fluid: Medically acceptable solution manufactured and labeled in accordance with applicable regulations.
5. Actuator: Pull-down front panel.
6. Spray Heads: Protected, two mounted on tank.

I. Freeze-Protected, Self-Contained Eyewash Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Fend-all.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Speakman Company.
 - g. <Insert manufacturer's name>.
2. Capacity: Not less than 0.4 gpm (1.5 L/min.) for at least 15 minutes.
3. Gravity Tank: [14 gal. (53 L) minimum] [20 gal. (76 L) minimum] <Insert value>, plastic, and suitable for shelf mounting.
4. Flushing Fluid: Medically acceptable solution manufactured and labeled in accordance with applicable regulations.
5. Actuator: Pull-down front panel.
6. Spray Heads: Protected, two mounted on tank.
7. Heating System: Electric, 120 V ac; insulation enclosed in a protective jacket.

2.4 EYE/FACE WASH EQUIPMENT

A. Standard, Freestanding, Plumbed Eye/Face Wash Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. <Insert manufacturer's name>.
2. Capacity: Not less than 3.0 gpm (11.4 L/min.) for at least 15 minutes.
3. Supply Piping: NPS 1/2 (DN 15) chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: [Paddle] [Treadle] <Insert actuator>.
5. Spray-Head Assembly: Two or four receptor-mounted spray heads.

6. Receptor: [**Chrome-plated brass or stainless steel**] [**Plastic**] bowl.
7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.
8. Drain Piping: Include galvanized-steel indirect connection to drainage system.
9. Mounting: Pedestal.

B. Accessible, Freestanding, Plumbed Eye/Face Wash Units, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. WaterSaver Faucet Co.
 - f. **<Insert manufacturer's name>**.
2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: [**Paddle**] **<Insert actuator>**.
5. Spray-Head Assembly: Two or four receptor-mounted spray heads.
6. Receptor: [**Chrome-plated brass or stainless steel**] [**Plastic**] bowl.
7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.
8. Drain Piping: Include galvanized-steel indirect connection to drainage system.
9. Mounting: Offset pedestal.
10. Special Construction: Comply with ICC A117.1.

C. Standard, Wall-Mounted, Plumbed Eye/Face Wash Units, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.

- f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. Stingray Systems LLC.
 - i. WaterSaver Faucet Co.
 - j. **<Insert manufacturer's name>**.
2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: [**Paddle**] **<Insert actuator>**.
 5. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 6. Receptor: [**Chrome-plated brass or stainless steel**] **<Insert material>** bowl.
 7. Drain Piping:
 - a. Size: **NPS 1-1/4 (DN 32)** minimum.
 - b. Finish: Chrome-plated brass.
 - c. Fittings: Receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2.
 8. Mounting: Wall bracket.
- D. Accessible, Wall-Mounted, Plumbed Eye/Face Wash Units, **<Insert drawing designation>**:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. Haws Corporation.
 - e. WaterSaver Faucet Co.
 - f. **<Insert manufacturer's name>**.
 2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: [**Paddle**] **<Insert actuator>**.
 5. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 6. Receptor: [**Chrome-plated brass or stainless steel**] **<Insert material>** bowl.
 7. Mounting: Wall bracket.
 8. Special Construction: Comply with ICC A117.1.
- E. Sink, Fixed-Position, Plumbed Eye/Face Wash Unit, **<Insert drawing designation>**:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.

- d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. WaterSaver Faucet Co.
 - h. **<Insert manufacturer's name>**.
2. Capacity: Not less than **3 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Piping: **NPS 1/2 (DN 15)** chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: Paddle.
 5. Spray-Head Assembly: Two or four spray heads positioned over sink.
 6. Receptor: [**Chrome-plated brass or stainless steel**] **<Insert material>** bowl.
 7. Mounting: Attached to sink receptor.

2.5 COMBINATION UNITS

A. Standard, Plumbed Emergency Shower with Eyewash Combination Units, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
2. Piping:
 - a. Material: [**Galvanized steel**] [**Chrome-plated brass or stainless steel**] [**PVC**].
 - b. Unit Supply: [**NPS 1-1/4 (DN 32) minimum**] [**NPS 1-1/2 (DN 40)**].
 - c. Unit Drain: Outlet at back or side near bottom.
3. Shower:
 - a. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1 (DN 25)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: [**Pull rod**] [**Treadle**] **<Insert actuator>**.
 - d. Shower Head: **8-inch- (200-mm-)** minimum diameter, [**chrome-plated brass or stainless steel**] [**plastic**].
 - e. Mounting: Pedestal.
4. Eyewash Unit:

- a. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1/2 (DN 15)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Paddle.
 - d. Spray-Head Assembly: Two receptor-mounted spray heads.
 - e. Receptor: [**Chrome-plated brass or stainless steel**] [**Plastic**] bowl.
 - f. Mounting: Attached shower pedestal.
 - g. Drench-Hose Option: May be provided instead of eyewash unit.
 - 1) Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
 - 2) Drench Hose: Hand-held spray head with squeeze-handle actuator and hose.
 - 3) Mounting: Bracket on shower pedestal.
- B. Accessible, Plumbed Emergency Shower with Eyewash Combination Units, **<Insert drawing designation>**:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
 2. Piping:
 - a. Material: [**Galvanized steel**] [**Chrome-plated brass or stainless steel**] [**PVC**].
 - b. Unit Supply: [**NPS 1-1/4 (DN 32) minimum**] [**NPS 1-1/2 (DN 40)**].
 - c. Unit Drain: Outlet at back or side near bottom.
 3. Shower:
 - a. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1 (DN 25)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: [**Pull rod**] **<Insert actuator>**.
 - d. Shower Head: **8-inch- (200-mm-)** minimum diameter, [**chrome-plated brass or stainless steel**] [**plastic**].
 - e. Mounting: Pedestal.
 4. Eyewash Unit:
 - a. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1/2 (DN 15)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Paddle.
 - d. Spray-Head Assembly: Two receptor-mounted spray heads.
 - e. Receptor: [**Chrome-plated brass or stainless steel**] [**Plastic**] bowl.

- f. Mounting: Attached shower pedestal.
 - g. Drench-Hose Option: May be provided instead of eyewash unit.
 - 1) Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
 - 2) Drench Hose: Hand-held spray head with squeeze-handle actuator and hose.
 - 3) Mounting: Bracket on shower pedestal.
- C. Standard, Plumbed Emergency Shower with Eye/Face Wash Combination Units, **<Insert drawing designation>**:
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
 - 2. Piping:
 - a. Material: **[Galvanized steel] [Chrome-plated brass or stainless steel] [PVC]**.
 - b. Unit Supply: **[NPS 1-1/4 (DN 32) minimum] [NPS 1-1/2 (DN 40)]**.
 - c. Unit Drain: Outlet at back or side near bottom.
 - 3. Shower:
 - a. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1 (DN 25)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: **[Pull rod] [Treadle] <Insert actuator>**.
 - d. Shower Head: **8-inch- (200-mm-)** minimum diameter, **[chrome-plated brass or stainless steel] [plastic]**.
 - e. Mounting: Pedestal.
 - 4. Eye/Face Wash Unit:
 - a. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1/2 (DN 15)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Paddle.
 - d. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 - e. Receptor: **[Chrome-plated brass or stainless steel] [Plastic]** bowl.
 - f. Mounting: Attached shower pedestal.
 - g. Drench-Hose Option: May be provided instead of eye/face wash unit.
 - 1) Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 - 2) Drench Hose: Hand-held spray head with squeeze-handle actuator and hose.

3) Mounting: Bracket on shower pedestal.

D. Accessible, Plumbed Emergency Shower with Eye/Face Wash Combination Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. <Insert manufacturer's name>.
2. Piping:
 - a. Material: [Galvanized steel] [Chrome-plated brass or stainless steel] [PVC].
 - b. Unit Supply: [NPS 1-1/4 (DN 32) minimum] [NPS 1-1/2 (DN 40)].
 - c. Unit Drain: Outlet at back or side near bottom.
3. Shower:
 - a. Capacity: Not less than 20 gpm (76 L/min.) for at least 15 minutes.
 - b. Supply Piping: NPS 1 (DN 25) with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: [Pull rod] <Insert actuator>.
 - d. Shower Head: 8-inch- (200-mm-) minimum diameter, [chrome-plated brass or stainless steel] [plastic].
 - e. Mounting: Pedestal.
4. Eye/Face Wash Unit:
 - a. Capacity: Not less than 3.0 gpm (11.4 L/min.) for at least 15 minutes.
 - b. Supply Piping: NPS 1/2 (DN 15) with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Paddle.
 - d. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 - e. Receptor: [Chrome-plated brass or stainless steel] [Plastic] bowl.
 - f. Mounting: Attached to shower pedestal.
 - g. Drench-Hose Option: May be provided instead of eye/face wash unit.
 - 1) Capacity: Not less than 3.0 gpm (11.4 L/min.) for at least 15 minutes.
 - 2) Drench Hose: Hand-held spray head with squeeze-handle actuator and hose.
 - 3) Mounting: Bracket on shower pedestal.

E. Freeze-Protected, Plumbed Emergency Shower with Eyewash Combination Units, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. B-L-S Industries, Inc.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Speakman Company.
 - g. **<Insert manufacturer's name>**.
2. Piping: Galvanized steel.
 - a. Unit Supply: **[NPS 1-1/4 (DN 32) minimum]** **[NPS 1-1/2 (DN 40)]** from bottom.
3. Heating System: Electric, **[120]** **[240]** V ac; insulation enclosed in a protective jacket with thermometer.
 - a. Heating Capacity: **[10 deg F (6 deg C)]** **<Insert temperature>** minimum above ambient temperature.
 - b. Design Ambient Temperature: **<Insert temperature>**.
4. Shower:
 - a. Shower Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1 (DN 25)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: **[Pull rod]** **<Insert actuator>**.
 - d. Shower Head: **8-inch- (200-mm-)** minimum diameter, **[chrome-plated brass or stainless steel]** **[plastic]**.
 - e. Mounting: Pedestal.
5. Eyewash Unit:
 - a. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
 - b. Supply Piping: **NPS 1/2 (DN 15)** with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: **[Paddle]** **<Insert actuator>**.
6. Eye/Face Wash Unit:
 - a. Capacity: Not less than **3 gpm (11.4 L/min.)** for at least 15 minutes.
 - b. Control-Valve Actuator: **[Paddle]** **<Insert actuator>**.
7. Appurtenances:
 - a. **<Insert appurtenances>**.

2.6 SUPPLEMENTAL EQUIPMENT

- A. Self-Contained, Personal Eyewash Units, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. Haws Corporation.
 - e. Sellstrom Manufacturing Company.
 - f. Speakman Company.
 - g. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)**.
3. Pressure Tank: [**5 gal. (19 L)**] **<Insert value>**, stainless steel, cylindrical, with pressure gage and base suitable for on-floor installation.
4. Flushing Fluid: Medically acceptable solution manufactured and labeled in accordance with applicable regulations.
5. Spray-Head Assembly: Chrome-plated copper alloy or stainless steel piping with flow regulator; paddle-actuated, stay-open control valve; and two spray heads mounted on tank.

B. Deck-Mounted, Plumbed Drench Hoses, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.
 - f. Speakman Company.
 - g. Stingray Systems LLC.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)**.
3. Supply Fitting: **NPS 1/2 (DN 15)** brass with flow regulator.
4. Drench Hose: Hand-held spray head with squeeze-handle actuation and hose.
5. Mounting: In hole in deck.

C. Wall-Mounted, Plumbed Drench Hoses, <Insert drawing designation>:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. Guardian Equipment Co.
 - e. Haws Corporation.

- f. Sellstrom Manufacturing Company.
 - g. Speakman Company.
 - h. WaterSaver Faucet Co.
 - i. **<Insert manufacturer's name>**.
2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Fitting: **NPS 1/2 (DN 15)** brass with flow regulator.
 4. Drench Hose: Hand-held spray head with squeeze-handle actuation and hose.
 5. Mounting: Wall bracket.

2.7 WATER-TEMPERING EQUIPMENT

A. Hot- and Cold-Water, Water-Tempering Equipment, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Safety.
 - b. Armstrong International, Inc.
 - c. Bradley Corporation.
 - d. Encon Safety Products.
 - e. Guardian Equipment Co.
 - f. Haws Corporation.
 - g. Lawler Manufacturing Company, Inc.
 - h. Leonard Valve Company.
 - i. POWERS; A WATTS Brand.
 - j. Speakman Company.
 - k. Stingray Systems LLC.
 - l. WATTS.
 - m. **<Insert manufacturer's name>**.
2. Description: Factory-fabricated equipment with thermostatic mixing valve.
 - a. Thermostatic Mixing Valve: Designed to provide **[85 deg F (29 deg C)] <Insert temperature>** tepid, potable water at emergency plumbing fixtures, to maintain temperature at plus or minus **[5 deg F (3 deg C)] <Insert temperature>** 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.
 - b. Supply Connections: For hot and cold water.

B. Steam and Cold-Water, Water-Tempering Equipment, **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Encon Safety Products.
 - b. Haws Corporation.
 - c. Therm-Omega-Tech, Inc.

- d. <Insert manufacturer's name>.
2. Description: Factory-fabricated equipment with thermostatic mixing valve.
 - a. Thermostatic Mixing Valve: Designed to provide [85 deg F (29 deg C)] <Insert temperature> tepid, potable water at emergency plumbing fixtures, to maintain temperature at plus or minus [5 deg F (3 deg C)] <Insert temperature> throughout required 15-minute test period, and in case of unit failure to continue cold-water flow, with union connections, steam controls, heat exchanger, high-temperature-limit and freeze-protection devices, metal piping, and corrosion-resistant enclosure.
 - b. Supply Connections: For steam and cold water.
- C. Flow-Control, Electric, Tankless, Domestic-Water Heaters:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Chronomite; <R Series> or comparable product by one of the following:
 - a. A.O. Smith.
 - b. Bosch Thermotechnology Corp.
 - c. Eemax, Inc.
 - d. Stiebel Eltron, Inc.
 - e. <Insert manufacturer's name>.
 2. Source Limitations: Obtain undercounter, tankless, domestic-water heaters from single source from single manufacturer.
 3. Standard: UL 499 for electric, tankless, domestic-water-heating appliance.
 4. Construction: Plastic heating chamber with direct-insertion heating element, mounted in metal housing.
 - a. Connections: 3/4 NPS ASME B1.20.1 male pipe thread.
 - b. Operating Pressure: [25 psig (175 kPa)] <Insert value>.
 - c. Pressure Rating: [150 psig (1035 kPa)] <Insert value>.
 - d. Minimum Operating Flow: 1.8 gpm (6.8 L/m).
 - e. Heating Element: Celcon plastic chamber with nichrome coil element, resistance-type heating system.
 - f. Temperature Control: Microprocessor-based, to maintain temperature setpoint over full range of flows.
 - g. Enclosure: NEMA 1.
 5. Accessories:
 - a. Enclosure: Stainless steel, No. 4 brushed finish.
 - b. Disconnect Switch: 80A, lockable, in NEMA 4X enclosure.
 - c. Q-Quiet, clickless activation.
 - d. Digital readout.
 6. Capacity and Characteristics:
 - a. Flow Rate: 1.8 - 5.0 gpm (6.8 - 18.9 L/m) <Insert gpm (L/m)>.

- b. Minimum Operating Flow to Activate Heater: 1.8 gpm (6.8 L/m).
 - c. Temperature Setting, Adjustable: 84 deg F (29 deg C).
 - d. Electrical Characteristics:
 - 1) Volts: [208] [240] [277] <Insert value> V, hard-wired.
 - 2) Phases: Single.
 - 3) Hertz: 60 Hz.
 - 4) Full-Load Amperes: <Insert value> A.
 - 5) Minimum Circuit Ampacity: <Insert value> A.
 - 6) Maximum Overcurrent Protection: <Insert value> A.
 - 7) Ambient Operating Temperature: 140 deg F (60 deg C), maximum.
- D. Electric, Tankless, Domestic-Water Heaters for Safety Fixtures:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Chronomite; <ERB 3-Phase Series> or comparable product by one of the following:
 - a. A.O. Smith.
 - b. Eemax.
 - c. Haws Corporation.
 - d. Keltech.
 - e. Stiebel Eltron, Inc.
 - f. <Insert manufacturer's name>.
 2. Source Limitations: Obtain domestic-water heaters from single source from single manufacturer.
 3. Standard: UL 499 for electric, tankless, (domestic-water-heater) heating appliance.
 4. Options:
 - a. Factory Preset Water Temperature: 84 deg F (29 deg C).
 - b. Enclosure: [Stainless steel, No. 4 brushed finish] [Stainless steel, No. 8 high-polish finish].
 - c. Disconnect Switch: [200A] [400A], [fused] [unfused], lockable, in NEMA 4X enclosure.
 5. Construction: Plastic heating chamber with direct-insertion heating element, mounted in metal housing.
 - a. Connections: 1-1/4 NPS, ASME B1.20.1 female pipe thread.
 - b. Operating Pressure: 25 - 80 psig (175 - 552 kPa) <Insert value>.
 - c. Pressure Rating: 150 psig (1034 kPa) <Insert value>.
 - d. Heating Element: Celcon plastic chamber with nichrome coil element, resistance-type heating system.
 - e. Temperature Control: Microprocessor-based, to maintain temperature setpoint over full range of flows.
 - f. Enclosure: [Steel] [Stainless steel, No. 4 brushed finish] [NEMA 4] [NEMA 4X].

6. Accessories:
 - a. Enclosure: [**Stainless steel, No. 4 brushed finish**] [**Stainless steel, No. 8 high-polish finish**].
 - b. Disconnect Switch: [**200A**] [**400A**], lockable, in NEMA [**4**] [**4X**] enclosure.
 - c. Digital readout.
 - d. Beacon alarm.
 - e. GFCI convenience receptacle.

7. Capacity and Characteristics:
 - a. Operating Flow: **2.8 - 30 gpm** (**10.6 - 114 L/m**).
 - b. Maximum Temperature Setting: **84 deg F** (**29 deg C**) <Insert temperature>.
 - c. Electrical Characteristics:
 - 1) Volts: [**208**] [**240**] [**380**] [**415**] [**600**] <Insert value> V.
 - 2) Phases: Three.
 - 3) Hertz: 60 Hz.
 - 4) Full-Load Amperes: 74 - 208<Insert value> A.
 - 5) Minimum Circuit Ampacity: <Insert value> A.
 - 6) Maximum Overcurrent Protection: <Insert value> A.

2.8 SOURCE QUALITY CONTROL

- A. Certify performance of emergency plumbing fixtures by independent testing organization acceptable to authorities having jurisdiction.
 1. Exception: <Insert manufacturer's name>.

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 INSTALLATION OF 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, to facilitate maintenance of the equipment. Use ball or gate 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 220523.12 "Ball Valves for Plumbing Piping" and Section 220523.15 "Gate Valves for Plumbing Piping."
1. Exception: Omit shutoff valve on supply to group of plumbing fixtures that includes emergency equipment.
 2. Exception: Omit shutoff valve on supply to emergency equipment if prohibited by authorities having jurisdiction.
- E. Install shutoff valve and strainer in steam piping and shutoff valve in condensate return piping. Comply with requirements for steam and condensate piping specified in Section 232213 "Steam and Condensate Heating Piping" and Section 232216 "Steam and Condensate Heating Piping Specialties."
- F. 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."
- G. 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."
- H. 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."
- I. 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."
- J. 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."
- K. 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. Connect steam and cold-water-supply and condensate return piping to steam and cold water-tempering equipment. Connect output from water-tempering equipment to emergency plumbing fixtures. Comply with requirements for cold-water piping specified in Section 221116 "Domestic Water Piping" and comply with requirements for steam and condensate piping specified in Section 232213 "Steam and Condensate Heating Piping" and Section 232216 "Steam and Condensate Heating Piping Specialties."
- D. Connect cold water and electrical power to electric heating water-tempering equipment. Comply with requirements for cold-water piping specified in Section 221116 "Domestic Water Piping."
- E. 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."
- F. Indirectly connect emergency plumbing fixture receptors without trapped drain outlet to sanitary waste or storm drainage piping.
- G. 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. 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 224500