

SECTION 224500 - 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 RELATION TO OTHER WORK

- A. Refer to the section, "General Plumbing Provisions", for related requirements. Refer to other sections of Division 22 and to all other applicable portions of the Drawings and Specifications.

1.3 SUMMARY

- A. Section Includes:
 - 1. Eyewash equipment.
 - 2. Eye/face wash equipment.
 - 3. Combination units.

1.4 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.

1.5 SUBMITTALS

- A. Submit manufacturer's data for review before any work is commenced

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 EYEWASH EQUIPMENT

A. Standard, Freestanding, Plumbed Eyewash Units:

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.
2. Capacity: Not less than 0.4 gpm for at least 15 minutes.
3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Spray-Head Assembly: Two receptor-mounted spray heads.
5. Drain Piping:
 - a. Size: NPS 1-1/4 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.
6. Drain Piping: Include galvanized-steel indirect connection to drainage system.
7. Mounting: Pedestal.

B. Accessible, Freestanding, Plumbed Eyewash Units:

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.
2. Capacity: Not less than 0.4 gpm for at least 15 minutes.
3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
4. Spray-Head Assembly: Two receptor-mounted spray heads.
5. Drain Piping:
 - a. Size: NPS 1-1/4 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.
- 6. Mounting: Offset pedestal.
- 7. Special Construction: Comply with ICC A117.1.

C. Standard, Wall-Mounted, Plumbed Eyewash Units:

- 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. Haws Corporation.
 - e. Speakman Company.
 - f. Stingray Systems LLC.
 - g. Guardian Equipment Co.
- 2. Capacity: Not less than 0.4 gpm for at least 15 minutes.
- 3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
- 4. Spray-Head Assembly: Two receptor-mounted spray heads.
- 5. Drain Piping:
 - a. Size: NPS 1-1/4 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.
- 6. Mounting: Wall bracket.

D. Accessible, Wall-Mounted, Plumbed Eyewash Units:

- 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. Haws Corporation.
 - e. Speakman Company.
 - f. Guardian Equipment Co.
- 2. Capacity: Not less than 0.4 gpm for at least 15 minutes.
- 3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
- 4. Spray-Head Assembly: Two receptor-mounted spray heads.
- 5. Drain Piping:
 - a. Size: NPS 1-1/4 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.

6. Mounting: Wall bracket.
7. Special Construction: Comply with ICC A117.1.

E. Sink, Fixed-Position, Plumbed Eyewash Unit:

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.
2. Capacity: Not less than 0.4 gpm for at least 15 minutes.
3. Supply Piping: NPS 1/2 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:

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.
2. Capacity: Not less than 0.4 gpm for at least 15 minutes.
3. Supply Piping: NPS 1/2 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.

2.3 EYE/FACE WASH EQUIPMENT

A. Standard, Freestanding, Plumbed Eye/Face Wash Units:

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. Haws Corporation.
 - e. Sellstrom Manufacturing Company.
 - f. Speakman Company.
 - g. Guardian Equipment Co.
- 2. Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - 3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 - 4. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 - 5. Receptor: Chrome-plated brass or stainless-steel bowl.
 - 6. Drain Piping:
 - a. Size: NPS 1-1/4 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.
 - 7. Drain Piping: Include galvanized-steel indirect connection to drainage system.
 - 8. Mounting: Pedestal.

B. Accessible, Freestanding, Plumbed Eye/Face Wash Units:

- 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.
- 2. Capacity: Not less than 3.0 gpm for at least 15 minutes.
- 3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
- 4. Spray-Head Assembly: Two or four receptor-mounted spray heads.
- 5. Receptor: Chrome-plated brass or stainless-steel bowl.
- 6. Drain Piping:
 - a. Size: NPS 1-1/4 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.
- 7. Drain Piping: Include galvanized-steel indirect connection to drainage system.
- 8. Mounting: Offset pedestal.
- 9. Special Construction: Comply with ICC A117.1.

C. Standard, Wall-Mounted, Plumbed Eye/Face Wash Units:

- 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. Haws Corporation.
 - e. Guardian Equipment Co.
 - f. Speakman Company.
 - g. Stingray Systems LLC.
 - 2. Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - 3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 - 4. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 - 5. Receptor: Chrome-plated brass or stainless-steel bowl.
 - 6. Drain Piping:
 - a. Size: NPS 1-1/4 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.
 - 7. Mounting: Wall bracket.
- D. Accessible, Wall-Mounted, Plumbed Eye/Face Wash Units:
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Haws Corporation.
 - d. Guardian Equipment Co.
 - 2. Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - 3. Supply Piping: NPS 1/2 chrome-plated brass or stainless steel with flow regulator and stay-open control valve.
 - 4. Spray-Head Assembly: Two or four receptor-mounted spray heads.
 - 5. Receptor: Chrome-plated brass or stainless-steel bowl.
 - 6. Mounting: Wall bracket.
 - 7. Special Construction: Comply with ICC A117.1.
- E. Sink, Fixed-Position, Plumbed Eye/Face Wash Unit:
- 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.
 - 2. Capacity: Not less than 3 gpm for at least 15 minutes.
 - 3. Supply Piping: NPS 1/2 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 bowl.
 - 7. Mounting: Attached to sink receptor.

2.4 COMBINATION UNITS

A. Standard, Plumbed Emergency Shower with Eyewash Combination Units:

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. Haws Corporation.
 - e. Speakman Company.
 - f. Guardian Equipment Co.
2. Shower:
 - a. Capacity: Not less than 20 gpm for at least 15 minutes.
3. Eyewash Unit:
 - a. Capacity: Not less than 0.4 gpm for at least 15 minutes.
 - b. Supply Piping: NPS 1/2 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 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 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:

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. Haws Corporation.
 - e. Speakman Company.
 - f. Guardian Equipment Co.
2. Shower:
 - a. Capacity: Not less than 20 gpm for at least 15 minutes.
 - b. Mounting: Pedestal.
3. Eyewash Unit:
 - a. Capacity: Not less than 0.4 gpm for at least 15 minutes.
 - b. Supply Piping: NPS 1/2 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 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 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:

- 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.
- 2. Shower:
 - a. Capacity: Not less than 20 gpm for at least 15 minutes.
 - b. Mounting: Pedestal.
- 3. Eye/Face Wash Unit:
 - a. Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - b. Supply Piping: NPS 1/2 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 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 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:

- 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. Haws Corporation.
 - e. Speakman Company.
 - f. Guardian Equipment Co.

2. Shower:
 - a. Capacity: Not less than 20 gpm for at least 15 minutes.
 - b. Mounting: Pedestal.
3. Eye/Face Wash Unit:
 - a. Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - b. Supply Piping: NPS 1/2 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. Mounting: Attached to shower pedestal.
 - f. Drench-Hose Option: May be provided instead of eye/face wash unit.
 - 1) Capacity: Not less than 3.0 gpm for at least 15 minutes.
 - 2) Drench Hose: Hand-held spray head with squeeze-handle actuator and hose.
 - 3) Mounting: Bracket on shower pedestal.

2.5 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 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.
- 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.
- 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.
- 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. 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."
- C. Indirectly connect emergency plumbing fixture receptors without trapped drain outlet to sanitary waste or storm drainage piping.
- D. 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 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