SECTION 224500 - EMERGENCY PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

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

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Field quality-control test reports.

D. Operation and maintenance data.

1.3 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.

PART 2 - PRODUCTS

2.1 EMERGENCY SHOWERS

A. Freestanding, Plumbed Emergency Showers:

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

2. Capacity: Not less than 20 gpm for at least 15 minutes.
3. Supply Piping: NPS 1 galvanized steel or PVC with flow regulator and stay-open control valve.
4. Control-Valve Actuator: [Pull rod] [Foot treadle].
5. Shower Head: 8-inch- minimum diameter, chrome-plated brass or stainless steel

2.2 EYEWASH EQUIPMENT

A. Standard, Freestanding, Plumbed Eyewash Units:

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

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] [Treadle].
5. Spray-Head Assembly: Two receptor-mounted spray heads.
6. Receptor: [Chrome-plated brass or stainless-steel] bowl.
7. Drain Piping: NPS 1-1/4 minimum, chrome-plated brass, receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2 Include galvanized-steel indirect connection to drainage system.

B. Accessible, Freestanding, Plumbed Eyewash Units:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   b. Encon Safety Products.
   c. Haws Corporation.
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.
5. Spray-Head Assembly: Two receptor-mounted spray heads.
6. Receptor: [Chrome-plated brass or stainless-steel] bowl.
7. Drain Piping: NPS 1-1/4 minimum, chrome-plated brass, receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2 Include galvanized-steel indirect connection to drainage system.

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:
   b. Encon Safety Products.
   c. Haws Corporation.

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. Control-Valve Actuator: [Paddle] [Treadle].
5. Spray-Head Assembly: Two or four receptor-mounted spray heads.
6. Receptor: [Chrome-plated brass or stainless-steel] bowl.
7. Drain Piping: NPS 1-1/4 minimum, chrome-plated brass, receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2 Include galvanized-steel indirect connection to drainage system.

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; a division of Acorn Engineering Company.
   b. Bradley Corporation.
   c. Encon Safety Products.
   d. Guardian Equipment Co.
   e. WaterSaver Faucet Co.

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.
5. Spray-Head Assembly: Two or four receptor-mounted spray heads.
6. Receptor: [Chrome-plated brass or stainless-steel] bowl.
7. Drain Piping: NPS 1-1/4 minimum, chrome-plated brass, receptor drain, P-trap, waste to wall, and wall flange complying with ASME A112.18.2/CSA B125.2 Include galvanized-steel indirect connection to drainage system.


2.4 COMBINATION UNITS

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

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Acorn Safety; a division of Acorn Engineering Company.
   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. Piping:
   a. Material: [Galvanized steel] [Chrome-plated brass] [PVC].
   b. Unit Supply: NPS 1-1/4 minimum.
   c. Unit Drain: Outlet at back or side near bottom.

3. Shower:
   a. Capacity: Not less than 20 gpm for at least 15 minutes.
   b. Supply Piping: NPS 1 with flow regulator and stay-open control valve.
   c. Control-Valve Actuator: [Pull rod] [Treadle].
   d. Shower Head: 8-inch- minimum diameter, [chrome-plated brass or stainless steel].
   e. Mounting: Pedestal.

4. 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.
   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. 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; a division of Acorn Engineering Company.
   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. Piping:
   a. Material: [Galvanized steel] [Chrome-plated brass or stainless steel] [PVC].
   b. Unit Supply: NPS 1-1/4 minimum
   c. Unit Drain: Outlet at back or side near bottom.

3. Shower:
   a. Capacity: Not less than 20 gpm for at least 15 minutes.
   b. Supply Piping: NPS 1 with flow regulator and stay-open control valve.
   c. Control-Valve Actuator: [Pull rod] [Treadle].
   d. Shower Head: 8-inch- minimum diameter, [chrome-plated brass or stainless steel].
   e. Mounting: Pedestal.

4. Eye/Face Wash Unit:
   a. Capacity: Not less than 3 gpm for at least 15 minutes.
   b. Supply Piping: NPS 1/2 with flow regulator and stay-open control valve.
   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 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 WATER-TEMPERERING EQUIPMENT

A. Hot- and Cold-Water, Water-Tempering Equipment:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   
a. Acorn Safety; a division of Acorn Engineering Company.
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. Description: Factory-fabricated equipment with thermostatic mixing valve.
   
a. Thermostatic Mixing Valve: Designed to provide 85 deg F tepid, potable water at emergency plumbing fixtures, to maintain temperature at plus or minus 5 deg F 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.

2.6 SOURCE QUALITY CONTROL

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

PART 3 - EXECUTION

3.1 EMERGENCY PLUMBING FIXTURE INSTALLATION

A. Insulate all outdoor fixtures and plumbing to prevent water from solar heating to an uncomfortable or dangerous level. Install outdoor fixtures under shade when possible.

B. Install fixtures level and plumb and fasten to substrate.

C. Install shutoff valves in water-supply piping to fixtures. Install valves chained in open position. 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."

D. 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."

E. 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."
F. Install trap and waste piping on drain outlet of emergency equipment receptors that are indicated to be directly connected to drainage system.

G. Fill self-contained fixtures with flushing fluid.

3.2 CONNECTIONS

A. 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."

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."

3.3 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."

3.4 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 visual and mechanical inspection.
   2. Perform Leak Test after installation and charging.
   3. Perform Operational Test after electrical circuitry has been energized to test all safety features.
   4. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust or replace fixture flow regulators for proper flow.

B. Adjust equipment temperature settings.

END OF SECTION