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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, Pedestal-Mounted, Plumbed Emergency Showers, **<Insert drawing designation>**:
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [**S1300**] [**S2300**] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. **<Insert manufacturer's name>**.
  - 2. Capacity: Not less than **20 gpm (76 L/m)** for at least 15 minutes.
  - 3. Supply Piping: 1-1/4 inch female NPT threaded stainless steel side or top inlet.
  - 4. Control-Valve: 1-inch NPT stay-open stainless steel ball valve.
  - 5. Actuator Arm: Standard length stainless steel pull arm.
  - 6. Shower Head: [**8-inch- (200-mm-) diameter, stainless steel**] [**7-3/8-inch- (178-mm-) diameter, anti-microbial yellow ABS**].
  - 7. Piping and Mounting: Schedule 40 galvanized steel supply pipe with **9-1/8 inch (229 mm)** cast iron floor flange with a yellow powder-coated finish.
  - 8. Include universal identification sign, ANSI compliant, and waterproof weekly test card.
  - 9. Options:
    - a. Electric alarm with flashing light and horn (-AL2).
    - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-2-BVS-OTG).
    - c. Flow switch, single pole (-FLW1).
    - d. Modesty curtain (-MC1).
    - e. MAP switch for one actuator (-MS1).
    - f. 60-inch-long pull rod (-PR60).

- g. 1-inch stainless steel ball valve (-SV1).

B. Off-Floor, Plumbed Emergency Showers, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S1100] [S1200] [S2100] [S2200] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Capacity: Not less than 20 gpm (76 L/m) for at least 15 minutes.
3. Mounting: [Vertical] [Horizontal].
4. Supply Piping: 1-inch female NPT threaded brass.
5. Control Valve: 1-inch NPT stay-open rough chrome ball valve.
6. Actuator Arm: Standard length stainless steel pull arm.
7. Shower Head: [7-3/8-inch- (178-mm-) diameter anti-microbial yellow ABS] [8-inch-(200-mm-) diameter stainless steel].
8. Include universal identification sign, ANSI compliant, and waterproof weekly test card.
9. Options:
  - a. Electric alarm with flashing light and horn (-AL2).
  - b. Thermostatic mixing valve per ASSE 1071 and ANSI Z358.1 (-ET71-2-BVS-OTG).
  - c. Flow switch, single pole (-FLW1).
  - d. Modesty curtain [(-MC2)] [(-MC1)].
  - e. MAP switch for one actuator (-MS1).
  - f. 60-inch-long pull rod (-PR60).
  - g. 1-inch stainless steel ball valve (-SV1).

C. Freeze-Protected, Plumbed Emergency Showers, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S1200-FPV] [S2200-FPV] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Capacity: Not less than 20 gpm (76 L/m) for at least 15 minutes.
3. Control Valve: 1-inch NPT stay-open rough chrome plated brass ball valve with a stainless steel push handle[ with 100 mesh inline strainer].
4. Shower Head: [7-3/8-inch- (178-mm-) diameter anti-microbial yellow ABS] [8-inch-(200-mm-) diameter stainless steel].
5. Include universal identification sign, ANSI compliant, and waterproof weekly test card.
6. Options:

- a. Electric alarm with flashing light and horn (-AL2).
- b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-2-BVS-OTG).
- c. Flow switch, single pole (-FLW1).
- d. MAP switch for one actuator (-MS1).
- e. 1-inch stainless steel ball valve (-SV1).
- f. All stainless steel (-AS).

## 2.3 EYEWASH EQUIPMENT

### A. Standard, Freestanding, Plumbed Eyewash Units, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model S0340 or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Water Supply: 1/2-inch NPT female chrome-plated brass.
3. Spray-Head Assembly: Anti-microbial ABS yellow plastic eyewash heads with integral flip dust covers and internal 50-mesh inline strainer.
4. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
5. Bowl: 11-3/4 inch (299 mm) diameter, stainless steel.
6. Piping and Mounting: Schedule 40 galvanized steel supply pipe with 9-1/8 inch (229 mm) cast iron floor flange with a yellow powder-coated finish.
7. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
8. Options:
  - a. Stainless steel "clam shell" cover (-CS1).
  - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - c. Flow switch, single pole (-FLW2).
  - d. Freeze protection valve (-FPV).
  - e. Hand foot control (-HFC).
  - f. Instantaneous water heater - 208 volts (-IWH1).
  - g. Instantaneous water heater - 240 volts (-IWH2).
  - h. MAP switch for one actuator (-MS1).
  - i. Stainless steel dust covers (-SDC).
  - j. Scald protection valve (-SPV).
  - k. Stainless eyewash spray heads (-SSE).
  - l. Stainless steel ball valve (-SV2).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model S0340-BF or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. **<Insert manufacturer's name>**.
2. Handicap accessible.
3. Water Supply: 1/2-inch NPT female chrome-plated brass.
4. Spray-Head Assembly: Anti-microbial ABS yellow plastic eyewash heads with integral flip dust covers and internal 50-mesh inline strainer.
5. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
6. Bowl: **11-3/4 inch (299 mm)** diameter, stainless steel.
7. Piping and Mounting: Schedule 40 galvanized steel supply pipe with **9-1/8 inch (229 mm)** cast iron floor flange with a yellow powder-coated finish.
8. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
9. Options:
  - a. Stainless steel "clam shell" cover (-CS1).
  - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - c. Flow switch, single pole (-FLW2).
  - d. Freeze protection valve (-FPV).
  - e. Hand foot control (-HFC).
  - f. Instantaneous water heater - 208 volts (-IWH1).
  - g. Instantaneous water heater - 240 volts (-IWH2).
  - h. MAP switch for one actuator (-MS1).
  - i. Stainless steel dust covers (-SDC).
  - j. Scald protection valve (-SPV).
  - k. Stainless eyewash spray heads (-SSE).
  - l. Stainless steel ball valve (-SV2).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model **[S0420] [S0440-CS1] [S0460]** or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. **<Insert manufacturer's name>**.
2. Water Supply: 1/2-inch NPT female chrome-plated brass.
3. Spray-Head Assembly: Anti-microbial ABS yellow plastic eyewash heads with integral flip dust covers and internal 50-mesh inline strainer.

4. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
5. Bowl: 11-3/4 inch (299 mm) diameter [**anti-microbial yellow ABS**] [**stainless steel with clam shell cover that opens and closes with the activation handle**].
6. Mounting: 11 gauge stainless steel wall bracket with a yellow powder-coated finish that supports the spray-head assembly.
7. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
8. Options:
  - a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - b. Flow switch, single pole (-FLW2).
  - c. Hand foot control (-HFC).
  - d. Instantaneous water heater - 208 volts (-IWH1).
  - e. Instantaneous water heater - 240 volts (-IWH2).
  - f. MAP switch for one actuator (-MS1).
  - g. Stainless steel dust covers (-SDC).
  - h. Stainless eyewash spray heads (-SSE).
  - i. Stainless steel ball valve (-SV2).
  - j. Freeze protection valve (-FPV).
  - k. Less wall bracket (-LWB).
  - l. Scald protection valve (-SPV).
  - m. P-trap, chrome-plated brass with 1/4-inch OD waste outlet (-PT1).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [**S0420-BF**] [**S0440-CS1-BF**] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <**Insert manufacturer's name**>.
2. Water Supply: 1/2-inch NPT female chrome-plated brass.
3. Spray-Head Assembly: Anti-microbial ABS yellow plastic eyewash heads with integral flip dust covers and internal 50-mesh inline strainer.
4. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
5. Bowl: 11-3/4 inch (299 mm) diameter [**anti-microbial yellow ABS**] [**stainless steel with clam shell cover that opens and closes with the activation handle**].
6. Mounting: 11 gauge stainless steel wall bracket with a yellow powder-coated finish that supports the spray-head assembly.
7. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
8. Options:

- a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - b. Flow switch, single pole (-FLW2).
  - c. Hand foot control (-HFC).
  - d. Instantaneous water heater - 208 volts (-IWH1).
  - e. Instantaneous water heater - 240 volts (-IWH2).
  - f. MAP switch for one actuator (-MS1).
  - g. Stainless steel dust covers (-SDC).
  - h. Stainless eyewash spray heads (-SSE).
  - i. Stainless steel ball valve (-SV2).
  - j. Freeze protection valve (-FPV).
  - k. Less wall bracket (-LWB).
  - l. Scald protection valve (-SPV).
  - m. P-trap, chrome plated brass with 1/4-inch OD waste outlet (-PT1).
- E. Sink, Fixed-Position, Plumbed Eyewash Unit, <Insert drawing designation>:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model S0000-FME or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. <Insert manufacturer's name>.
  2. Assembly shall be chrome-plated brass.
  3. Includes pop-off dust covers.
  4. Thread connection: 55/64 inch x 27 thread faucet.
  5. Include adapters for 15/16 inch and 13/16 inch x 27 thread.
  6. Options:
    - a. A345 - Alternate Adapter: Female 3/4 inch garden hose.
    - b. A305 - Alternate Adapter: Male 11/16 inch x 27 thread.
    - c. A339 - Alternate Adapter: Male 13/16 inch x 27 thread.
    - d. A306 - Alternate Adapter: Male 3/4 inch x 27 thread.
- F. Sink, Swivel-Type, Plumbed Eyewash Unit, <Insert drawing designation>:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S0660-RH] [S0860-RH] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. <Insert manufacturer's name>.
  2. Spray-Head Assembly: Anti-microbial ABS yellow plastic eyewash heads with integral flip dust covers.



3. Valve: Swing down with a 50-mesh inline strainer.
4. Supply: 1/2-inch NPT female threaded brass inlet.
5. Right Hand Mounting: [**Wall-mounted, 304 stainless steel valve housing**] [**Deck-mounted behind the sink, 304 stainless steel valve housing**].
6. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
7. Options:
  - a. All stainless steel (-AS).
  - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - c. Flow switch, single pole (-FLW2).
  - d. Instantaneous water heater - 208 volts (-IWH1).
  - e. Instantaneous water heater - 240 volts (-IWH2).
  - f. Left hand mounting (-LH) - replace RH with LH.
  - g. Stainless steel dust covers (-SDC).
  - h. Stainless eyewash spray heads (-SSE).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model S0P50 or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Capacity: Not less than **0.4 gpm (1.5 L/m)** for at least 15 minutes.
3. Tank: Highly visible yellow, UV-protected polyethylene with no moving parts.
4. Fill Opening: Wide for easy water filling with threaded cap.
5. Drain Hose: Supply with 36 inches of 1/2-inch ID drain hose.
6. Spray-Head Assembly: ABS eyewash heads with easy activation removable pull straps that form an airtight seal to prevent dust and debris from collecting on the eyewash heads.
7. Mounting: [**Wall mounting with stainless steel wall bracket**] [**Placed on any flat surface**].
8. Labels: Highly visible high-gloss identification/operation label and inspection/maintenance label are fixed to the face of the tank.
9. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.

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

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Encon Safety Products.
  - b. Fend-all.
  - c. Sellstrom Manufacturing Company.

- d. Speakman Company.
  - e. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/m)** 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. Encon Safety Products.
    - b. Fend-all.
    - c. Sellstrom Manufacturing Company.
    - d. Speakman Company.
    - e. **<Insert manufacturer's name>**.
  2. Capacity: Not less than **0.4 gpm (1.5 L/m)** 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. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [**S0320**] [**S0321**] [**S0340**] [**S0341**] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. **<Insert manufacturer's name>**.
  2. Water Supply: 1/2-inch NPT female chrome-plated brass.
  3. Spray-Head Assembly: Anti-microbial ABS yellow plastic eye/face wash heads with integral flip dust covers and internal 50-mesh inline strainer.
  4. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
  5. Bowl: **11-3/4 inch (299 mm)** diameter [**anti-microbial yellow ABS**] [**stainless steel**].

6. Piping and Mounting: Schedule 40 galvanized steel supply pipe with 9-1/8 inch (229 mm) cast iron floor flange with a yellow powder-coated finish.
7. Waste: 1-1/4 inch NPT female outlet.
8. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
9. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
10. Options:
  - a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - b. Flow switch, single pole (-FLW2).
  - c. MAP switch for one actuator (-MS1).
  - d. Stainless steel dust covers (-SDC).
  - e. Stainless eyewash spray heads (-SSE).
  - f. Stainless steel ball valve (-SV2).
  - g. Freeze protection valve (-FPV).
  - h. Stainless steel "clam shell" cover (-CS1).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S0320-BF] [S0340-BF] [S0321-BF] [S0341-BF] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Handicap accessible.
3. Water Supply: 1/2-inch NPT female chrome-plated brass.
4. Spray-Head Assembly: Anti-microbial ABS yellow plastic eye/face wash heads with integral flip dust covers and internal 50-mesh inline strainer.
5. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
6. Bowl: 11-3/4 inch (299 mm) diameter [anti-microbial yellow ABS] [stainless steel]..
7. Piping and Mounting: Schedule 40 galvanized steel supply pipe with 9-1/8 inch (229 mm) cast iron floor flange with a yellow powder-coated finish.
8. Waste: 1-1/4 inch NPT female outlet.
9. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
10. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
11. Options:
  - a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - b. Flow switch, single pole (-FLW2).
  - c. MAP switch for one actuator (-MS1).

- d. Stainless steel dust covers (-SDC).
- e. Stainless eyewash spray heads (-SSE).
- f. Stainless steel ball valve (-SV2).
- g. Freeze protection valve (-FPV).
- h. Stainless steel "clam shell" cover (-CS1).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S0420] [S0421] [S0440] [S0441] [S0460] [S0461] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Water Supply: 1/2-inch NPT female chrome-plated brass.
3. Spray-Head Assembly: Anti-microbial ABS yellow plastic eye/face wash heads with integral flip dust covers and internal 50-mesh inline strainer.
4. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
5. Bowl: 11-3/4 inch (299 mm) diameter [anti-microbial yellow ABS] [stainless steel with clam shell cover that opens and closes with the activation handle].
6. Mounting: 11 gage stainless steel wall bracket with a yellow powder-coated finish.
7. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
8. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
9. Options:
  - a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - b. Flow switch, single pole (-FLW2).
  - c. MAP switch for one actuator (-MS1).
  - d. Stainless steel dust covers (-SDC).

D. Accessible, Wall-Mounted, Plumbed Eye/Face Wash Units, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S0420-BF] [S0421] [S0440-BF] [S0441] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Handicap accessible.
3. Water Supply: 1/2-inch NPT female chrome plated brass.

4. Spray-Head Assembly: Anti-microbial ABS yellow plastic eye/face wash heads with integral flip dust covers and internal 50-mesh inline strainer.
  5. Control Valve: 1/2-inch NPT stay-open chrome-plated brass ball valve with a stainless steel push handle.
  6. Bowl: **11-3/4 inch (299 mm)** diameter [**anti-microbial yellow ABS**] [**stainless steel**].
  7. Piping and Mounting: 11 gauge stainless steel wall bracket with a yellow powder-coated finish.
  8. Waste: 1-1/4 inch NPT female outlet.
  9. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
  10. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
  11. Options:
    - a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
    - b. Flow switch, single pole (-FLW2).
    - c. MAP switch for one actuator (-MS1).
    - d. Stainless steel dust covers (-SDC).
- 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. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. **<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. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [**S1330**] [**S1331**] [**S2310**] [**S2311**] [**S2330**] [**S2331**] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.

- c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Piping, Water Supply, and Waste Outlet:
    - a. Schedule 40 galvanized steel and 9-1/8 inch (229 mm) diameter cast iron floor flange with yellow powder-coated finish.
    - b. Water Supply: 1 1/4 inch female NPT threaded side or top inlet.
    - c. Waste Outlet: 1-1/4 inch female NPT outlet.
  3. Shower Head, Valve, and Actuator Arm:
    - a. 1-inch NPT chrome plated brass stay-open ball valve with a stainless steel actuator arm and standard length stainless steel pull arm.
    - b. Shower Head: [8-inch- (200-mm-) diameter, stainless steel] [7-3/8-inch- (178-mm-) diameter, anti-microbial yellow ABS] with a 20 gpm flow regulator.
  4. Eyewash Valve, Push-Handle, Bowl, and Spray-Head Assembly:
    - a. Valve: 1/2-inch NPT chrome-plated brass stay-open valve with a stainless steel push handle and a 50-mesh inline strainer.
    - b. Spray Heads: Anti-microbial ABS yellow plastic with integral dust covers and debris filters.
    - c. Bowl: [11-3/4 inch (299 mm) diameter anti-microbial yellow ABS] [11-3/4 inch (299 mm) diameter stainless steel].
    - d. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
  5. Include universal identification sign, ANSI compliant, and waterproof weekly test card.
  6. Options:
    - a. Stainless steel "clam shell" cover (-CS1).
    - b. Electric alarm with flashing light and horn (-AL2).
    - c. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
    - d. Flow switch, single pole (-FLW1).
    - e. Freeze protection valve (-FPV).
    - f. Hand foot control (-HFC).
    - g. Modesty curtain (-MC1).
    - h. MAP switch for one actuator (-MS1).
    - i. MAP switch for two actuators (-MS2).
    - j. Stainless steel dust covers (-SDC).
    - k. Scald protection valve (-SPV).
    - l. Stainless steel 1-inch ball valve (-SV1).
    - m. Stainless steel 2-inch ball valve (-SV2).
- B. Accessible, Plumbed Emergency Shower with Eyewash Combination Units, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S1340-BF] [S1341-BF] [S2320-BF] [S2321-BF] [S2340-BF] [S2341-BF] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Piping, Water Supply, and Waste Outlet:
  - a. Schedule 40 galvanized steel and 9-1/8 inch (229 mm) diameter cast iron floor flange with yellow powder-coated finish.
  - b. Water Supply: 1-1/4 inch female NPT threaded side or top inlet.
  - c. Waste Outlet: 1-1/4 inch female NPT outlet.
3. Shower Head, Valve, and Actuator Arm:
  - a. 1-inch NPT chrome-plated brass stay-open ball valve with a stainless steel actuator arm and standard length stainless steel pull arm.
  - b. Shower Head: [8-inch- (200-mm-) diameter, stainless steel] [7-3/8-inch- (178-mm-) diameter, anti-microbial yellow ABS] with a 20 gpm flow regulator.
4. Eyewash Valve, Push-Handle, Bowl, and Spray-Head Assembly:
  - a. Valve: 1/2-inch NPT chrome-plated brass stay-open valve with a stainless steel push handle and a 50-mesh inline strainer.
  - b. Spray Heads: Anti-microbial ABS yellow plastic with integral dust covers and debris filters.
  - c. Bowl: 11-3/4 inch (299 mm) diameter [anti-microbial yellow ABS] [stainless steel].
  - d. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
5. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
6. Options:
  - a. Stainless steel "clam shell" cover (-CS1).
  - b. Electric alarm with flashing light and horn (-AL2).
  - c. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - d. Flow switch, single pole (-FLW1).
  - e. Freeze protection valve (-FPV).
  - f. Hand foot control (-HFC).
  - g. Modesty curtain (-MC1).
  - h. MAP switch for one actuator (-MS1).
  - i. MAP switch for two actuators (-MS2).
  - j. Stainless steel dust covers (-SDC).

- k. Scald protection valve (-SPV).
  - l. Stainless steel 1-inch ball valve (-SV1).
  - m. Stainless steel 2-inch ball valve (-SV2).
- C. Standard, Plumbed Emergency Shower with Eye/Face Wash Combination Units, **<Insert drawing designation>**:
- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S1320] [S1321] [S1340] [S1341] [S1360] [S1361] [S2320] [S2321] [S2340] [S2341] [S2360] [S2361] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. **<Insert manufacturer's name>**.
  - 2. Piping, Water Supply, and Waste Outlet:
    - a. Schedule 40 galvanized steel and 9-1/8 inch (229 mm) diameter cast iron floor flange with yellow powder-coated finish.
    - b. Water Supply: 1-1/4 inch female NPT threaded side or top inlet.
    - c. Waste Outlet 1-1/4 inch female NPT outlet.
  - 3. Shower Head, Valve, and Actuator Arm:
    - a. 1-inch NPT chrome-plated brass stay-open ball valve with a stainless steel actuator arm and standard length stainless steel pull arm.
    - b. Shower Head: [8-inch- (200-mm-) diameter, stainless steel] [7-3/8-inch- (178-mm-) diameter, anti-microbial yellow ABS] with a 20 gpm flow regulator.
  - 4. Eye/Face Wash Valve, Push-Handle, Bowl, and Spray-Head Assembly:
    - a. Valve: 1/2-inch NPT chrome-plated brass stay-open valve with a stainless steel push handle and a 50-mesh inline strainer.
    - b. Spray Heads: Anti-microbial ABS yellow plastic with integral dust covers and debris filters.
    - c. Bowl: 11-3/4 inch (299 mm) diameter [anti-microbial yellow ABS] [stainless steel].
  - 5. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
  - 6. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
  - 7. Options:
    - a. Stainless steel "clam shell" cover (-CS1).
    - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
    - c. Flow switch, single pole (-FLW1).
    - d. Hand foot control (-HFC).



- e. Modesty curtain (-MC1).
  - f. MAP switch for one actuator (-MS1).
  - g. MAP switch for two actuators (-MS2).
  - h. Stainless steel dust covers (-SDC).
  - i. 1-inch stainless steel ball valve (-SV1).
  - j. 2-inch stainless steel ball valve (-SV2).
- D. Accessible, Plumbed Emergency Shower with Eye/Face Wash Combination Units, **<Insert drawing designation>**:
- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S1320-BF] [S1321-BF] [S1340-BF] [S1341-BF] [S1360-BF] [S1361-BF] [S2320-BF] [S2321-BF] [S3240-BF] [S2341-BF] [S2360-BF] [S2361-BF] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. **<Insert manufacturer's name>**.
  - 2. Piping, Water Supply, and Waste Outlet:
    - a. Schedule 40 galvanized steel and **9-1/8 inch (229 mm)** diameter cast iron floor flange with yellow powder-coated finish.
    - b. Water Supply: 1 1/4 inch female NPT threaded side or top inlet.
    - c. Waste Outlet: 1-1/4 inch female NPT outlet.
  - 3. Shower Head, Valve, and Actuator Arm:
    - a. 1-inch NPT chrome-plated brass stay-open ball valve with a stainless steel actuator arm and standard length stainless steel pull arm.
    - a. Shower Head: [**8-inch- (200-mm-) diameter, stainless steel**] [**7-3/8-inch- (178-mm-) diameter, anti-microbial yellow ABS**] with a 20 gpm flow regulator.
  - 4. Eye/Face Wash Valve, Push-Handle, Bowl, and Spray-Head Assembly:
    - a. Valve: 1/2-inch NPT chrome-plated brass stay-open valve with a stainless steel push handle and a 50-mesh inline strainer.
    - b. Spray Heads: Anti-microbial ABS yellow plastic with integral dust covers and debris filters.
    - c. Bowl: **11-3/4 inch (299 mm)** diameter [**anti-microbial yellow ABS**] [**stainless steel**].
    - d. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
  - 5. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
  - 6. Options:

- a. Stainless steel "clam shell" cover (-CS1).
  - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - c. Flow switch, single pole (-FLW1).
  - d. Hand foot control (-HFC).
  - e. Modesty curtain (-MC1).
  - f. MAP switch for one actuator (-MS1).
  - g. MAP switch for two actuators (-MS2).
  - h. Stainless steel dust covers (-SDC).
  - i. Scald protection valve (-SPV).
  - j. Stainless steel 1-inch ball valve (-SV1).
  - k. Stainless steel 2-inch ball valve (-SV2).
- E. Mechanically-Freeze-Protected, Plumbed Emergency Shower with Eyewash Combination Units, **<Insert drawing designation>**:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S1320-FPV] [S1321-FPV] [S1340-FPV] [S1341-FPV] [S1360-FPV] [S1361-FPV] [S2320-FPV] [S2321-FPV] [S3240-FPV] [S2341-FPV] [S2360-FPV] [S2361-FPV] or comparable product by one of the following:
    - a. Encon Safety Products.
    - b. Sellstrom Manufacturing Company.
    - c. Speakman Company.
    - d. **<Insert manufacturer's name>**.
  2. Piping, Water Supply, and Waste Outlet:
    - a. Schedule 40 galvanized steel and 9-1/8 inch (229 mm) diameter cast iron floor flange with yellow powder-coated finish.
    - b. Water Supply: 1-1/4 inch female NPT threaded side or top inlet.
    - c. Waste Outlet: 1-1/4 inch female NPT outlet.
  3. Shower Head, Valve, and Actuator Arm:
    - a. 1-inch NPT chrome-plated brass stay-open ball valve with a stainless steel actuator arm and standard length stainless steel pull arm.
    - b. Shower Head: **[8-inch- (200-mm-) diameter, stainless steel] [7-3/8-inch- (178-mm-) diameter, anti-microbial yellow ABS]** with a 20 gpm flow regulator.
  4. Eye/Face Wash Valve, Push-Handle, Bowl, and Spray-Head Assembly:
    - a. Freeze Protection Valve: 3/4-inch NPT with push handle. Valve and supply are buried below the frost line. Includes bleed valve for automatic draining after each use.
    - b. Depth of Bury: **<Insert frost depth dimension>**.
    - c. Spray Heads: Anti-microbial ABS yellow plastic with integral dust covers and debris filters.

- d. Bowl: **11-3/4 inch (299 mm)** diameter [**anti-microbial yellow ABS**] [**stainless steel**].
  - e. Auxiliary eye/face and body hose with anti-microbial ABS plastic eye/face wash spray head, self-closing squeeze lever valve, 96-inch-long reinforced PVC hose and pipe hook.
5. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
  6. Options:
    - a. Stainless steel "clam shell" cover (-CS1).
    - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
    - c. Flow switch, single pole (-FLW1).
    - d. Hand foot control (-HFC).
    - e. Modesty curtain (-MC1).
    - f. MAP switch for one actuator (-MS1).
    - g. MAP switch for two actuators (-MS2).
    - h. Stainless steel dust covers (-SDC).
    - i. Scald protection valve (-SPV).
    - j. Stainless steel 1-inch ball valve (-SV1).
    - k. Stainless steel 2-inch ball valve (-SV2).
- F. Electrically Freeze-Protected, Plumbed Emergency Shower with Eyewash Combination Units, <Insert drawing designation>:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model S1360-HT or comparable product by one of the following:
    - a. B-L-S Industries, Inc.
    - b. Encon Safety Products.
    - c. **<Insert manufacturer's name>**.
  2. Piping and Water Supply:
    - a. Schedule 40 galvanized steel and **9-1/8 inch (229 mm)** diameter cast iron floor flange with yellow powder-coated finish.
    - b. Water Supply: 1-1/4 inch female NPT threaded side or top inlet.
  3. Shower Head, Valve, and Actuator Arm:
    - a. 1-inch NPT chrome-plated brass stay-open ball valve with a stainless steel actuator arm and standard length stainless steel pull arm.
    - b. **7-3/8-inch- (178-mm-)** diameter anti-microbial yellow ABS shower head with 20 gpm flow regulator.
  4. Eye/Face Wash Valve, Push-Handle, Bowl, and Spray-Head Assembly:

- a. Eye/Face Wash Valve: 1/2-inch IPS chrome-plated brass with stainless steel stem and push handle, with integrated weep hole that drains residual water after each use.
  - b. Spray Heads: Anti-microbial ABS yellow plastic with integral dust covers and debris filters.
  - c. Drench Hose: 60-inch-long yellow flexible PVC hose.
  - d. Drench Hose Valve: 1/2-inch ID chrome-plated brass, stay-open ball valve with stainless steel stem and push handle.
  - e. Electrical System/Heat Cable: Rated 5A at 0 deg F ambient temperature. System junction box and components rated Class 1, Division 2, Groups B, C and D. Self-regulating heat trace cable controlled by thermostat that shuts off the heat when the ambient temperature reaches 55 deg F. Cable is both FM and CSA approved. A GFCI protected circuit providing single phase 120 VAC, 60 Hz electrical service is required and provided by Installer.
  - f. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
5. Options:
- a. Electric alarm with flashing light and horn (-AL2).
  - b. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - c. Flow switch, single pole (-FLW1).
  - d. Stainless steel dust covers (-SDC).
  - e. Scald protection valve (-SPV).
  - f. Stainless steel 1-inch ball valve (-SV1).
  - g. Stainless steel 2-inch ball valve (-SV2).
  - h. Class 1, Division 1 (-C1D1).
  - i. Class 1, Division 2 (-C1D2).
  - j. 240 volt, 60 Hz service.

## 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. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <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 gauge 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. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S0704] [S0708] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.
2. Spray-Head Assembly:
  - a. Anti-microbial ABS yellow plastic [eye/face wash head] [eye wash heads] with integral flip dust covers and internal flow controls.
3. Valve: 1/2-inch NPT chrome-plated brass stay-open ball valve with a stainless steel push handle.
4. Hose: 96-inch yellow PVC hose with 300 psi maximum working pressure rating.
5. Mounting: Countertop mounting with a deck flange that has a locator guide to position the handle forward.
6. Supply: 1/2-inch NPT female threaded, chrome-plated brass inlet.
7. Include universal identification sign, ANSI Z358.1 compliant, and waterproof weekly test card.
8. Options:
  - a. Thermostatic mixing valve in accordance with ASSE 1071 and ANSI Z358.1 (-ET71-1-BVS-OTG).
  - b. Backflow preventer, double check valve with vent to atmosphere (-BFP).
  - c. Under-counter hose guide to prevent the hose from tangling (-HG).
  - d. Instantaneous water heater; 208 volts (-IWH1).
  - e. Instantaneous water heater; 240 volts (-IWH2).
  - f. Stainless steel dust covers (-SDC).
  - g. 96 inch flexible stainless steel hose (-SSH).
  - h. Push down handle located above the deck in lieu of a push handle (-PDV).

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Model [S0401-CH12] [S0402-CH12] [SO404] [S0406] [S0408-CH12] or comparable product by one of the following:
  - a. Encon Safety Products.
  - b. Sellstrom Manufacturing Company.
  - c. Speakman Company.
  - d. <Insert manufacturer's name>.

2. Shut-offs shall not be integral to the mixing valve in order to provide the means to prevent unauthorized shut-off in accordance with ANSI Z358 and ASSE 1071. If provided, only lockable ball valves are acceptable.
3. Cold-water bypass shall be independent of the mixing function to ensure cold-water bypass cannot be affected by the failure of any mixing component.
4. Repair of the mixing components shall not require the replacement of the cold-water bypass components and vice versa.

## 2.7 WATER-TEMPERING EQUIPMENT

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Safety; Morris Group International; Series ET71 or comparable product by one of the following:
  - a. Armstrong International, Inc.
  - b. Encon Safety Products.
  - c. Sellstrom Manufacturing Company.
  - d. Speakman Company.
  - e. Stingray Systems LLC.
  - f. WATTS.
  - g. <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 in accordance with ASSE 1071 throughout required 15-minute test period, and in case of failure, continues cold-water flow. Optional inlet/outlet metal piping, inlet and outlet temperature gauges, outlet ball valve, and corrosion-resistant enclosure.
  - b. Supply Connections: For hot and cold water.
  - c. Shut-offs shall not be integral to the mixing valve in order to provide the means to prevent unauthorized shut-off in accordance with ANSI Z358 and ASSE 1071. If provided, only lockable ball valves are acceptable.
  - d. Cold-water bypass shall be independent of the mixing function to ensure cold-water bypass cannot be affected by the failure of any mixing component.
  - e. Repair of the mixing components shall not require the replacement of the cold-water bypass components and vice-versa.
  - f. Capacity: [9.8] [35.1] [70.2] [110] <Insert value> gpm at 30 psid.

### 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. Therm-Omega-Tech, Inc.

- c. **<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. Electric Water-Tempering Equipment, **<Insert drawing designation>**:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Acorn Safety; Morris Group International.
    - b. Chronomite Laboratories, Inc.; a division of Morris Group International.
    - c. **<Insert manufacturer's name>**.
  2. Description: Factory-fabricated equipment with electric heating.
    - a. Heating System: Electric, 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, heating coils, high-temperature-limit device, metal piping, and corrosion-resistant enclosure.
      - 1) Electrical Characteristics: **[208 V ac, 38] [220 V ac, 40] [277 V ac, 32] A**, single phase, 60 Hz.

## 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 Gauges 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