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SECTION 224500 - EMERGENCY PLUMBING FIXTURES

TIPS:

To view non-printing **Editor's Notes** that provide guidance for editing, click on MasterWorks/Single-File Formatting/Toggle/Editor's Notes.

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Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

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

1.2 SUMMARY

A. Section Includes:

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

1.3 DEFINITIONS

Definitions in this article are from standards, references, and model plumbing codes.

Retain terms that remain after this Section has been edited for a project.

- 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 added.
- D. Tepid: 60 deg F to 100 deg F (16 deg C to 38 deg C).

1.4 ACTION SUBMITTALS

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

Haws Corporation does not supply Shop Drawings, Shop Drawings are provided by the subcontractor.

B. Shop Drawings:

1. Include plans, elevations, sections, and [mounting] [attachment] details.
2. Include details of equipment assemblies. Indicate dimensions, 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.

Retain subparagraph below if fixtures include electrical components and wiring.

4. Include diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

Retain "Product Certificates" Paragraph below only if third-party certification is required.

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

1.6 CLOSEOUT SUBMITTALS

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

1.7 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

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Avitru. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications. For definitions of terms and requirements for Contractor's product selection, see Section 016000 "Product Requirements."

2.1 PERFORMANCE REQUIREMENTS

Retain "Electrical Components, Devices, and Accessories" Paragraph below for electrical components.

- 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 ANSI Z358.1.
- C. All equipment to include safety green color in accordance with ANSI Z358.1 specifications for safety equipment.
- D. Shower system design shall be such that the water is evenly dispersed throughout the footprint of the flow to provide uniform drenching and comfort for the user. Shower head flow and pattern shall meet current ANSI Z358.1 standards.
- E. Eye wash and face wash units to provide an inverted directional flow in accordance with standard medical protocols and emergency response guidelines for flushing eyes.
- F. Delivery design to be a single head vs. dual head design and it must provide a means of controlled flow to both eyes simultaneously at a velocity that is non-injurious to the user with a minimum recommended flow pressure of 30 psi. (207 kPa).

- G. Eye/face wash units to contain an in-line strainer to filter debris and prevent clogging.

Retain "Regulatory Requirements" Paragraph below if fixtures include accessible emergency plumbing fixtures. There are similar Federal Government standards for accessibility; verify requirements with authorities having jurisdiction.

- H. 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

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

- A. Freestanding, Plumbed Emergency Showers, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; Model 8100. or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Speakman Company.
 - d. <Insert manufacturer's name>.
2. Capacity: Not less than 20 gpm (76 L/min.) for at least 15 minutes. Maximum flow not to exceed 25 gpm (95 L/min.) when within compliant pressure ranges.
3. Supply Piping: NPT 1-1/4-inch galvanized steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: Pull rod.
5. Shower Head: 10-1/2-inch (267-mm) diameter, plastic.
6. Mounting: Floor mounted.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; [Model 8122] [Model 8122HWC] [Model 8123] [Model 8130] [Model 8133H] [Model 8163] [Model 8164] [Model 8169] or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Encon Safety Products.
 - c. Speakman Company.
 - d. <Insert manufacturer's name>.
2. Capacity: Not less than 20 gpm (76 L/min.) for at least 15 minutes. Maximum flow not to exceed 25 gpm (95 L/min.) when within compliant pressure ranges.
3. Supply Piping: NPT 1 inch [galvanized steel] [stainless steel] [PVC] with flow regulator and stay-open control valve.

Haws Corporation Model 8164 has pull handle actuator; all other Haws Corporation models in this product type have pull rod actuators.

4. Control-Valve Actuator: **[Pull rod]** **[Pull handle]**.
5. Shower Head: **10-1/2-inch (267-mm)** diameter, **[stainless steel]** **[plastic]** **<Insert material>**.
6. Mounting: **[Horizontal from wall]** **[Vertical from ceiling]** and supported from piping.

Emergency shower in "Freeze-Protected, Plumbed Emergency Showers" Paragraph below requires data for ambient temperature or heating capacity.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; Model 8111FP or a comparable product by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. **<Insert manufacturer's name>**.
2. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes. Maximum flow not to exceed **25 gpm (95 L/min.)** when within compliant pressure ranges.
3. Supply Piping: NPT 1-inch galvanized steel with flow regulator and stay-open control valve.
4. Control-Valve Actuator: Paddle.
5. Shower Head: **10-1/2-inch (267-mm)** diameter, plastic.
6. Mounting: Wall.

2.3 EYEWASH EQUIPMENT

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; Model 7433FP or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Guardian Equipment Co.
 - d. **<Insert manufacturer's name>**.
2. Capacity: Not less than **2.4 gpm (9.08 L/min.)** for at least 15 minutes.
3. Supply Connection: NPT 1/2-inch brass with flow regulator and stay-open control valve.
4. Control-Valve Actuator: Paddle.
5. Spray-Head Assembly: Two receptor-mounted spray heads.
6. Receptor: Stainless steel bowl.
7. Drain Piping:

- a. Size: NPT 1-1/4 inch.
8. Mounting: Wall bracket.
- B. Accessible, Wall-Mounted, Plumbed Eyewash Units, <Insert drawing designation>:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; Model 7360BTWC or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Guardian Equipment Co.
 - d. <Insert manufacturer's name>.
 2. Capacity: Not less than 3 gpm (11.4 L/min.) for at least 15 minutes.
 3. Supply Connection: NPT 1/2-inch chrome-plated brass with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: Paddle.
 5. Spray-Head Assembly: Single plastic eye/face wash spray head.
 6. Receptor: Stainless steel bowl.
 7. Drain Piping:
 - a. Size: NPT 1-1/4 inch .
 - 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.
- C. Sink, Fixed-Position, Plumbed Eyewash Unit, <Insert drawing designation>:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; Model 7620 or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Guardian Equipment Co.
 - d. <Insert manufacturer's name>.
 2. Capacity: Not less than 0.4 gpm (1.5 L/min.) for at least 15 minutes.
 3. Supply Connection: 55/64-27 stainless steel adaptor for mounting to faucet.
 4. Spray-Head Assembly: Single stainless-steel spray head.
 5. Mounting: Attached to sink receptor.
- D. Sink, Swivel-Type, Plumbed Eyewash Unit, <Insert drawing designation>:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; [Model 7610] [Model 7611] [Model 7612] [Model 7612LH] or a comparable product by one of the following:

- a. Bradley Corporation.
 - b. Encon Safety Products.
 - 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 Connection: **1/2-inch (13 mm)** O.D. chrome-plated brass 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: Single **[brass] [stainless steel]** eye/face spray head.
 6. Mounting: Deck next to sink or on sink.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 7603] [Model 7601.37] [Model 7601.15]** or a comparable product by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.
3. Pressure Tank: **[15 gal. (57 L)] [37 gal. (140 L)] [ASME] [non-ASME]**, stainless steel, cylindrical, with pressure gage, and suitable for on-floor installation.
4. Flushing Fluid: Potable water preserved with water additive.
 - a. Basis-of-Design Product: Haws; 9082 water additive.
5. Spray-Head Assembly: Two spray heads mounted on tank (if supplied).

Drench hose in "Drench Hose" Subparagraph below is an optional component.

6. Drench Hose: Hand-held spray head with squeeze-handle actuation and hose attached to tank.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 7500] [Model 7500EB] [Model 7501] [Model 7501T] [Model 7501T240]** or a comparable product by one of the following:
 - a. Encon Safety Products.
 - b. Guardian Equipment Co.
 - c. Speakman Company.
 - d. **<Insert manufacturer's name>**.
2. Capacity: Not less than **0.4 gpm (1.5 L/min.)** for at least 15 minutes.

Retain "Gravity Tank" Subparagraph and first option below for Haws Corporation Model 7501; retain subparagraph and second option for Haws Corporation Model 7500.

3. Gravity Tank: [**9 gal. (34 L) minimum**] [**16 gal. (60.6 L)**] <Insert value>, plastic, and suitable for wall mounting.

Retain "Heated Blanket" Subparagraph below for Haws Corporation Model 7500EB, Model 7501T, or Model 7501T240.

4. Heated Blanket: For freeze protection.
5. Flushing Fluid: Medically Potable water preserved with water additive.
 - a. Basis-of-Design Product: Haws; 9082 water additive.
6. Actuator: Pull-down front panel.
7. Spray Heads: Protected, two mounted on tank.

2.4 EYE/FACE WASH EQUIPMENT

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

- A. Standard, Freestanding, Plumbed Eye/Face Wash Units, <Insert drawing designation>:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; [**Model 7261-7271**] [**Model 7361-7461**] [**Model 7777**] or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Speakman Company.
 - d. <Insert manufacturer's name>.
 2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Piping: NPT 1/2-inch [**chrome-plated brass**] [**stainless steel**] with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: Paddle.
 5. Spray-Head Assembly: Single [**stainless steel**] [**plastic**] eye/face wash spray head.
 6. Receptor: [**Stainless steel**] [**Plastic**] bowl.

Retain one of two "Drain Piping" subparagraphs below.

7. Drain Piping:
 - a. Size: NPT 1-1/4-inch minimum.
 - b. Finish: [**Galvanized steel**] [**Stainless steel**].
 - c. Fittings: Receptor drain, complying with ASME A112.18.2/CSA B125.2.
 8. Drain Piping: Include indirect connection to drainage system.
 9. Mounting: Pedestal.
- B. Standard, Wall-Mounted, Plumbed Eye/Face Wash Units, <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 7260B-7270B]** **[Model 7360B-7460B]** **[Model 7324]** **[Model 7778B]** or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. **<Insert manufacturer's name>**.
 2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Connection: NPT 1/2-inch **[chrome-plated brass]** **[stainless steel]** eye/face wash with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: Paddle.
 5. Spray-Head Assembly: Single spray head.
 6. Receptor: **[Plastic]** **[Stainless steel]** bowl.
 7. Drain Piping:
 - a. Size: NPT 1-1/4-inch minimum.
 - b. Fittings: Receptor drain, complying with ASME A112.18.2/CSA B125.2.
 8. Mounting: Wall bracket.
- C. Accessible, Wall-Mounted, Plumbed Eye/Face Wash Units, **<Insert drawing designation>**:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 7655WCC]** **[Model 7655WCSM]** **[Model 7656WCC]** **[Model 7656WCSM]** or a comparable product by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. **<Insert manufacturer's name>**.
 2. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
 3. Supply Connection: NPT 1/2-inch brass with flow regulator and stay-open control valve.
 4. Control-Valve Actuator: Pull handle.
 5. Spray-Head Assembly: Single eye/face wash spray head.
 6. Receptor: **[Stainless steel tray]** **[None]**.
 7. Mounting: Wall.
 8. Special Construction: Comply with ICC A117.1.
- D. Supplemental Equipment:
1. Deck-Mounted, Plumbed Drench Hoses, **<Insert drawing designation>**:

Retain "Basis-of-Design Product" Subparagraph and list of manufacturers below to identify a specific product or a comparable product from manufacturers listed.

- a. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; 8904 or comparable product by one of the following:

- 1) Acorn Safety.
- 2) Bradley Corporation.
- 3) Encon Safety Products.
- 4) Guardian Equipment Co.
- 5) Speakman Company.
- 6) **<Insert manufacturer's name>.**

- b. Capacity: Not less than **3 gpm (11.4 L/min.)**.
- c. Supply Fitting: **NPT 1/2-inch (15-mm)** brass with flow regulator.
- d. Drench Hose: Hand-held spray head with squeeze-handle actuation and hose.
- e. Mounting: In hole in deck.

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

Retain "Basis-of-Design Product" Subparagraph and list of manufacturers below to identify a specific product or a comparable product from manufacturers listed.

- a. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; 8905 or comparable product by one of the following:
 - 1) Acorn Safety.
 - 2) Bradley Corporation.
 - 3) Encon Safety Products.
 - 4) Guardian Equipment Co.
 - 5) Speakman Company.
 - 6) **<Insert manufacturer's name>.**
- b. Capacity: Not less than **3.0 gpm (11.4 L/min.)** for at least 15 minutes.
- c. Supply Fitting: **NPT 1/2-inch (15-mm)** brass with flow regulator.
- d. Drench Hose: Hand-held spray head with squeeze-handle actuation and hose.
- e. Mounting: Wall bracket.

2.5 COMBINATION UNITS

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

- A. Standard, Plumbed Emergency Shower with Eye/Face Wash Combination Units, **<Insert drawing designation>**:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 8300-8309] [Model 8320-8325] [Model 8300CRP-8309CRP] [Model 8317] [Model 8330] [Model 8300.158] [Model 8336]** or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Bradley Corporation.
 - c. Encon Safety Products.
 - d. **<Insert manufacturer's name>.**

2. Piping:
 - a. Material: **[Galvanized steel]** **[Chrome-plated brass or stainless steel]** **[PVC]**.
 - b. Unit Connection: NPT 1-1/4-inch .
 - c. Unit Drain: Outlet near bottom.
3. Shower:
 - a. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes. Maximum flow not to exceed **25 gpm (56 L/min.)** when within compliant pressure ranges.
 - b. Supplied with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Pull rod.
 - d. Shower Head: **10-1/2-inch (267-mm)** diameter, **[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. Supplied with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Paddle.
 - d. Spray-Head Assembly: **[Single plastic eye/face wash spray head]** **[Single stainless-steel eye/face wash spray head]** **[Two plastic eye wash spray heads]**.
 - e. Receptor: **[Stainless steel]** **[Plastic]** bowl.
 - f. Mounting: Floor mounted.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 8355WC]** **[Model 8355WCC]** **[Model 8355WCW]** **[Model 8356WCC]** **[Model 8356WCW]** **[Model 8356WCSM]** **[Model 8356WCDD]** or a comparable product by one of the following:
 - a. Acorn Safety.
 - b. Encon Safety Products.
 - c. Guardian Equipment Co.
 - d. **<Insert manufacturer's name>**.
2. Piping:
 - a. Material: Brass and stainless steel.
 - b. Unit Connection: NPT 1-inch.
 - c. Unit Drain: Outlet at back or side at bottom.
3. Shower:
 - a. Capacity: Not less than **20 gpm (76 L/min.)** for at least 15 minutes. Maximum flow not to exceed **25 gpm (56 L/min.)** when within compliant pressure ranges.
 - b. Supplied with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Pull handle.
 - d. Shower Head: **10-1/2-inch- (267-mm-)** diameter, Stainless steel.

- e. Mounting: **[Wall]** **[Ceiling]**.
- 4. Eye/Face Wash Unit:
 - a. Capacity: Not less than **3.0 gpm** (**11.4 L/min.**) for at least 15 minutes.
 - b. Supplied with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: Pull handle.
 - d. Spray-Head Assembly: Single eye/face wash spray head.
 - e. Receptor: **[Stainless steel drain tray]** **[No drain tray]**.
 - f. Mounting: Attached to unit.
- C. Freeze-Protected, Plumbed Emergency Shower with Eyewash Combination Units, **<Insert drawing designation>**:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 8300FP]** **[Model 8317CTFP]** **[Model 8317CTFP.220V]** **[Model 8317CTFPC1D1]** or a comparable product by one of the following:
 - a. Bradley Corporation.
 - b. Encon Safety Products.
 - c. Speakman Company.
 - d. **<Insert manufacturer's name>**.
 - 2. Piping: Galvanized steel.

Retain first option in "Unit Supply" subparagraph below for Haws; CTFP models. Retain the second option for Haws; Model 8300FP.

- a. Unit Supply: **[NPT 1-1/4]** **[NPT 1-1/4 inch and NPT 3/4 inch]**.
- b. Mounting: Floor mounted.

System in "Heating System" Subparagraph below requires data for ambient temperature or heating capacity.

Retain "Heating System" Subparagraph below for Haws; CTFP Models. Delete for Haws; Model 8300FP.

- 3. Heating System: Electric, **[120]** **[240]** V ac; insulation enclosed in a protective jacket with thermostat.
 - a. Design Ambient Temperature: **Minus 30 deg F** (**Minus 34 deg C**).
- 4. Shower:
 - a. Shower Capacity: Not less than **20 gpm** (**76 L/min.**) for at least 15 minutes. Maximum flow not to exceed **25 gpm** (**56 L/min.**) when within compliant pressure ranges.
 - b. Supplied with flow regulator and stay-open control valve.
 - c. Control-Valve Actuator: **[Pull rod]** **[Push plate]**.
 - d. Shower Head: **10-1/2-inch-** (**267-mm-**) diameter, plastic.

Retain the "Freeze-Resistant Supply Fittings" and "Bury Depth, Grade to Valve Components" subparagraphs below for Haws Corporation Model 8300FP.

- e. Freeze-Resistant Supply Fittings: Underground freeze-resistant valve assembly.
- f. Bury Depth, Grade to Valve Components: [24 inches (610 mm)] [42 inches (1067 mm)] <Insert dimension>.

Retain "Eyewash Unit" or "Eye/Face Wash Unit" Subparagraph below.

5. Eyewash Unit:

- a. Capacity: Not less than 2.4 gpm (9.1 L/min.) for at least 15 minutes.
- b. Supplied with flow regulator and stay-open control valve.
- c. Control-Valve Actuator: Push plate.

Retain the "Freeze-Resistant Supply Fittings" and "Bury Depth, Grade to Valve Components" subparagraphs below for Haws Corporation Model 8300FP.

- d. Freeze-Resistant Supply Fittings: Underground freeze-resistant shutoff and flow-control valve assembly.
- e. Bury Depth, Grade to Valve Components: [24 inches (610 mm)] [42 inches (1067 mm)] <Insert dimension>.

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.

7. Appurtenances:

Insert appurtenances, such as alarms, drench hose, and lights, required for application.

- a. <Insert appurtenances>.

2.6 WATER-TEMPERING EQUIPMENT

Use equipment in this article only for emergency plumbing fixtures without an integral tempered-water system. Do not use general-use, thermostatic mixing valves or tempering valves. Revise temperatures to suit Project. Indicate capacities on Drawings.

Copy this article and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

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

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; [Model 9201E] [Model 9201EFE] [Model 9201EW] [Model 9201H] [Model 9202E] [Model TWBS.SHE] [Model TWBS.HF] [Model TWBS.EWE] or a comparable product by one of the following:
 - a. Acorn Safety.

- b. Lawler Manufacturing Company, Inc.
 - c. Leonard Valve Company.
 - d. **<Insert manufacturer's name>**.
 2. Description: Factory-fabricated equipment with thermostatic mixing valve.
 - a. Thermostatic Mixing Valve: Designed to provide **80 deg F (27 deg C)** tepid, potable water at emergency plumbing fixtures, to maintain temperature at plus or minus **5 deg F (3 deg C)** throughout required 15-minute test period, and in case of unit failure to continue tepid flow, cold water would continue through cold water bypass.
 - b. Supply Connections: For hot and cold water.
- B. Steam and Cold-Water, Water-Tempering Equipment, **<Insert drawing designation>**:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 9400]** **[Model 9400LPS]** or a comparable product by one of the following:
 - a. **<Insert manufacturer's name>**.
 2. Description: Steam water heater
 - a. Thermostatic Mixing Valve: Designed to provide **80 deg F (26.6 deg C)** tepid, potable water at emergency plumbing fixtures by mixing steam and cold water, and in case of unit failure to continue cold-water flow.
 - b. Operates on typical plant steam pressure; **[45 to 60 psig (3 to 4 bar)]** **[15 to 30 psig (1 to 2 bar)]** is recommended.
 - c. Supply Connections: NPT 1-inch steam inlet, NPT 1-1/4-inch for water inlet and outlet.
 - d. Provides **3 to 25 gpm (11 to 95 L/m)** of tepid water.
- C. Electric Water-Tempering Equipment, **<Insert drawing designation>**:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haws Corporation; **[Model 9321]** **[Model 9326]** **[Model 9327]** or a comparable product by one of the following:
 - a. Bradley Corporation.
 - b. Chronomite Laboratories, Inc.
 - c. **<Insert manufacturer's name>**.
 2. Description: Instantaneous indoor electric water heating system
 3. Standard: UL 499 for electric, tankless, (domestic-water-heater) heating appliance.
 4. Construction: Copper piping or tubing complying with NSF 61 and NSF 372 barrier materials for potable water, without storage capacity.
 - a. Connections: ASME B1.20.1 pipe thread.
 - b. Pressure Rating: **[150 psig (1035 kPa)]** **<Insert value>**.
 - c. Heating Element: Resistance heating system.
 - d. Temperature Control: Thermostat.

- e. Diagnostics: On-board diagnostics with digital LCD display.
- f. Predictive Control Algorithm: High-capacity flow meter with inlet and outlet temperature sensors to maintain set temperature points.
- g. Safety Control: High-temperature-limit cutoff device or system, and thermo-optical sensor for protection against entrained air or improper commissioning.
- h. Heated Water Pump: No over shoot in temperature after unit is shut down. Unit shall not discharge or purge water to floor or drain as a means of avoiding temperature overshoot. Return to ambient within seconds.
- i. Cabinet: [**Powder-coated steel**] [**304/316 stainless steel**].

5. Capacity and Characteristics:

- a. Flow Rate: **30 gpm** (**113 L**).
- b. Temperature Setting: **90 deg F** (**32 deg C**).
- c. Power Demand: [**54**] [**61**] [**72**] [**102**] [**109**] [**126**] [**130**] [**150**].
- d. Electrical Characteristics:
 - 1) Volts: [**120**] [**240**] [**480**].
 - 2) Phases: Three.
 - 3) Hertz: 60 Hz.
 - 4) Full-Load Amperes: [**59**] [**65**] [**87**] [**98**] [**125**] [**144**] [**150**] [**151**].
 - 5) Minimum Circuit Ampacity: 151 A.
 - 6) Maximum Overcurrent Protection: 250 A.
 - 7) Optional: Class 1, Division 2, fused disconnect switch, dry contacts, and ground fault circuit interrupter.

2.7 SOURCE QUALITY CONTROL

Retain this article if certification is required for emergency plumbing fixtures; revise to suit Project. Some manufacturers do not offer third-party certification of compliance with ISEA Z358.1 for some or all of their fixtures.

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

PART 3 - EXECUTION

3.1 EXAMINATION

Retain this article for plumbed emergency plumbing fixtures. Delete option in first paragraph below if no direct-connection drain piping is required.

- 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."

Retain first paragraph below if steam-mixing valve is used.

- 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."

Retain first paragraph below if emergency equipment has a direct connection drain.

- 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."

Retain first paragraph below if emergency equipment has an indirect waste connection.

- 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

Coordinate piping installations and specialty arrangements with schematics on Drawings and with requirements specified in piping systems. If Drawings are explicit enough, these requirements may be reduced or omitted.

Retain, revise, or delete first six paragraphs below to suit Project.

- 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."

Retain first paragraph below if steam mixing valve is used.

- 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.

Retain "Test and Inspections" Paragraph below to describe tests and inspections to be performed.

- 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.

See Section 014000 "Quality Requirements" for retesting and reinspection requirements and Section 017300 "Execution" for requirements for correcting the Work.

- 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