

SECTIONXXX

EMERGENCY SHOWER/EYEWASH STATIONS

PART 1-- GENERAL

1.1 THE REQUIREMENT

- A. Furnish and install emergency shower/eyewash stations as shown on the Drawings and as specified herein. Coordinate work in this Section with painting and marking as specified in Section 09900, Painting. Certain equipment items will be field located by Owner, if not otherwise shown on the Drawings.

1.2 SUBMITTALS

- A. Submit Shop Drawings, Performance Affidavit, Operation and Maintenance Instructions and other information as specified for all items of equipment in this Section in accordance with Section XXXXX, Equipment General Provisions and Section XXXXX, Submittals. Shop Drawings shall also include complete erection, installation, and adjustment instructions and recommendations.

1.3 MANUFACTURERS

- A. The materials covered by these Specifications are intended to be standard equipment of proven reliability and as manufactured by reputable manufacturers having experience in the production of such equipment. The equipment furnished shall be designed, constructed, and installed in accordance with the best practices and methods and shall operate satisfactorily when installed as shown on the Drawings and operated per manufacturers' recommendations.

PART 2 -- PRODUCTS

2.1 PACKAGED TEMPERED WATER HEATER

- A. A factory-packaged water heater designed to provide tempered water for emergency shower/eyewash stations shall be provided as shown on the Drawings. The water heater shall be electric with automatic controls and listed by UL. The system shall be a Model EMV emergency tepid water delivery system as manufactured by Hubbell, or equal. The unit shall be designed to operate at 240 volts, 1 phase, and 60 hertz with a maximum load of 4.5 KW. **(Optional Specification:** Insert Alternate Voltage, Phase and KW) The system shall be specifically designed for tepid water delivery to emergency safety shower/face/eyewash fixtures in accordance with ANSI Z358.1-1998. Packaged system shall consist of a long-life cement lined electric water heater with integrally mounted, factory supplied, calibrated and performance tested, triple redundant thermostatic pressure balanced mixing valve system. Unit shall be supplied ready for electrical and plumbing service connections.

- B. The electric water heater shall be a 120-gallon capacity vertical carbon steel tank lined with seamless Hydrastone cement applied via centrifugal spinning process resulting in even distribution of a minimum 1/2" cement thickness and maximum thickness of 3/4" over all interior surfaces, and a cement density of 0.20 lbs/cubic inch minimum in order to provide increased longevity and inhibit oxidized water ingress. Hand troweled applications that do not meet above requirements shall not be acceptable. Storage Vessel shall not require any type of anodic protection.
- C. Tank inlet and outlet water connections shall be a minimum of 1 1/2" NPT non-ferrous copper-silicon/brass insulated with a 3" thick polyurethane foam insulation at minimum value of R-7 per inch and a minimum total value of R-21. Insulating value shall exceed the ASHRAE standard 90.1-2013 requiring an R-value of 12.5 for stand-by heat loss by a minimum of 10% (**Optional Specification:** 60%) Water heater shall be rated for 150 psig working pressure.
- D. Outer protective jacket shall be a dent-resistant composite jacket to resist rust and corrosion. (**Optional Specification:** Stainless Steel Outer Jacket)
- E. Delivery water temperature control shall be provided by an integrally-piped, factory installed and packaged thermostatic mixing valve. Valve shall be specifically designed, tested and manufacturer designated for use in emergency safety drench applications. Design flow rate shall be 20 gpm, (23 GPM w/ face/eyewash) delivery water set point shall be 85°F, (**Optional Specification:** 75F) Temperature safety system shall consist of a diaphragm-operated valve actuator to ensure a continuous delivery flow of tepid water. The valve shall monitor pressure on both cold and hot water inlets. On loss of cold water pressure, the valve shall "fail safe" to cold and prevent delivery of hot water to avoid scalding. On loss of hot water pressure, the valve shall allow the full ANSI-required flow of cold water to the emergency safety fixture. Water pressure drop across the system must not exceed 5 psi at 20 GPM flow, and mixing valve must have a Cv rating not less than 10.0.
- F. The system shall be supplied complete with all electrical operating controls. Safety devices and accessories shall include a low watt density incoloy immersion heating element, an adjustable immersion temperature controller, a safety high limit switch with manual reset, a dial temperature and pressure gauge, an ASME temperature and pressure relief valve, and an automatic air vent valve.
- G. The water heater manufacturer shall warranty all electrical components against defects in workmanship and material for a period of one (1) year from date of start-up, and the pressure vessel for a full five (5) years, (**Optional Specification:** 10 Year) non-pro-rated, from date of start-up.

PART 3 -- EXECUTION

3.01 INSTALLATION

- A. Emergency shower/eyewash stations shall be installed where shown on the Drawings or as directed by the Engineer. Where required by OSHA regulations, the background of the mounting location shall be painted the appropriate color.
- B. The Contractor shall provide a 3/4" copper drain line from the temperature and pressure relief valve and from the drain valve to the nearest drain. Contractor shall also provide dielectric unions and shut-off isolation valves at each water connection.

