SECTION 22 45 00 – emergency shower and eye wash equipment

1. GENERAL
   * + 1. RELATED DOCUMENTS
          1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
          2. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.
       2. SUMMARY
          1. Provide all materials and labor for emergency shower and eye wash equipment, and associated piping, supports, valves, and accessories to provide complete, operable, and code compliant installation that is acceptable to the authorities having jurisdiction.
          2. Emergency shower and eye wash equipment addressed by this specification shall be installed within conditioned or ventilated spaces having ambient temperatures between 60 and 100 degrees Fahrenheit.
       3. REFERENCE STANDARDS
          1. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
          2. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
          3. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

2009 Edition of the International Plumbing Code.

ANSI Standard: Comply with ANSI Z358.1-2004, "Emergency Eyewash and Shower Equipment."

Americans with Disabilities Act, 28 CFR Part 35 Nondiscrimination on the Basis of Disability in State and Local Government Services, Final Rule, as published in the Federal Register.

ICC/ANSI A117.1, "Accessible and Usable Buildings and Facilities" relative to plumbing fixtures for people with disabilities.

NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

* + - 1. QUALITY ASSURANCE
         1. All materials shall be new, undamaged, and free of rust. Protect installed products and associated materials during progression of the construction period to avoid clogging with dirt, and debris and to prevent damage, rust, etc. Remove dirt and debris as Work progresses.
         2. Manufacturer Qualifications: Company shall have minimum three (3) years documented experience specializing in manufacturing the products specified in this section.
         3. Installer Qualifications: Company shall have minimum three (3) years documented experience specializing in performing the Work of this Section. Installation of plumbing systems shall be performed by individuals licensed by the AHJ as a Journeyman or Master Plumber. Installation may be performed by Apprentice Plumbers provided they are registered with the AHJ and under direct supervision of a licensed plumber. All installation shall be supervised by a licensed Master Plumber.
      2. SUBMITTALS
         1. Product Data:

Provide Code and Standards compliance, component dimensions, service sizes and finishes.

* + - * 1. Record Documents:

Record actual locations of supply isolation valves, emergency shower and eye wash equipment installed.

Provide full written description of manufacturer’s warranty.

Manufacturer’s Installation Instructions: Indicate assembly and support requirements, adjustment and testing procedures.

* + - * 1. Operation and Maintenance Data:

Include installation instructions, exploded assembly views, servicing requirements, inspection data, installation instructions, spare parts lists, replacement part numbers and availability, location and contact numbers of service depot, for all components installed.

Include cleaning, testing and adjustment procedures for all components installed.

* + - 1. DELIVERY, STORAGE and HANDLING
         1. Accept equipment and materials on Site in shipping containers and maintain in place until installation.
         2. Protect installed equipment from damage and/or entry of foreign materials by temporary covers during the construction phase of this Project.
         3. Do not allow use of installed equipment for any reason, other than testing, during the construction phase of this Project.
         4. Protect all materials before and after installation from exposure to rain, freezing temperatures and direct sunlight.
      2. EXTRA MATERIALS
         1. Provide manufacturer’s drench shower tester for each emergency shower installed.

1. PRODUCTS
   * + 1. GENERAL
          1. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.
          2. Provide emergency equipment as indicated and scheduled on the Contract Drawings and as specified herein.
          3. Pressure ratings of equipment and related accessories shall be suitable for the anticipated system pressures in which they are installed.
          4. Equipment and components of same type shall be product of one (1) manufacturer.
          5. All emergency equipment shall meet American with Disabilities Act (ADA) accessibility requirements for activation of controls and height of eye/face outlets with the following exceptions:

Equipment within boiler rooms or central plants.

Eye/face outlets located in countertops that are not required to be accessible.

* + - * 1. Emergency equipment activation devices shall be designed so that the flushing water remains on without requiring the use of the operator's hands. The valve shall be designed to remain activated until intentionally shut off.
        2. Shower head flow rate shall be 20 gallons per minute at a minimum 30 pounds per square inch water pressure.
        3. Eye Wash unit shall provide flushing fluid at 0.4 gallons per minute at a minimum 30 pounds per square inch water pressure.
        4. Face Wash unit shall provide flushing fluid at 3 gallons per minute at a minimum 30 pounds per square inch water pressure.
      1. ACCEPTABLE MANUFACTURERS:
         1. Water Saver
         2. Bradley
         3. Haws
         4. Speakman
         5. Guardian
      2. COMBINATION EMERGENCY SHOWER AND EYE/FACE WASH:
         1. Barrier-free design with coated galvanized steel piping; 10 inch diameter yellow impact-resistant plastic shower head; Chrome-plated brass 1 inch IPS stay-open ball-type shower valve operated by stainless steel pull rod having triangular handle; 10 inch diameter stainless steel eye wash bowl; chrome-plated brass spray head assembly with twin, soft flow, eye wash heads and protective spray head covers; integral flow control capable of maintaining uniform flow under varying water supply conditions from 30-90 psig; Chrome-plated 1/2 inch IPS stay-open ball-type eye wash valve hand operated by a large, highly visible safety yellow PVC push handle; chrome-plated circular face spray ring; universal identification sign; inspection tag, and 1-1/4 inch water supply connection.
      3. DRENCH SHOWER WITH HORIZONTAL SUPPLY:
         1. Barrier-free design with coated galvanized steel piping; 10 inch diameter yellow impact-resistant plastic shower head; Chrome-plated brass 1 inch IPS stay-open ball-type shower valve operated by stainless steel pull rod having triangular handle; universal identification sign; inspection tag, and 1 inch water supply connection.
      4. DRENCH SHOWER - FLUSH-MOUNTED:
         1. Barrier-free design with coated galvanized steel piping; 12-7/8 inch diameter flanged stainless steel shower head; Chrome-plated brass 1 inch IPS stay-open ball-type shower valve operated by stainless steel pull rod having triangular handle; universal identification sign; inspection tag, and 1 inch water supply connection.
      5. DRENCH SHOWER WITH VERTICAL SUPPLY:
         1. Barrier-free design with 10 inch diameter stainless steel shower head; stainless steel 1 inch IPS stay-open ball-type shower valve operated by stainless steel pull rod having triangular handle; universal identification sign; inspection tag, and 1 inch water supply connection.
      6. DRENCH SHOWER TESTER:
         1. Watertight, chemical resistant 84 inch long funnel constructed of Tyvek®, with weighted bottom and 6 foot telescoping aluminum handle.
      7. EYEWASH - SWING-TYPE, COUNTER MOUNTED:
         1. Chrome-plated brass spray head assembly with twin, soft flow, eye wash heads and protective spray head covers; integral flow control capable of maintaining uniform flow under varying water supply conditions from 30-90 psig; Chrome-plated 1/2 inch IPS stay-open ball-type eye wash valve hand operated by a large, highly visible stainless steel push handle; chrome plated brass pipe and fittings; universal identification sign; inspection tag, and 1/2 inch water supply connection.
      8. EYE/FACE WASH - SWING-TYPE, COUNTER MOUNTED:
         1. Universal right or left hand mounting with locking mechanism; twin perforated disc eye/face wash heads with protective pop-off spray head covers; integral flow control capable of maintaining uniform flow under varying water supply conditions from 30-90 psig; Chrome-plated 1/2 inch IPS stay-open ball-type valve operated by pulling swing arm 90 degrees over sink; chrome plated brass pipe and fittings; universal identification sign; inspection tag, and 1/2 inch water supply connection.
      9. EYE/FACE WASH - DECK/COUNTER TOP MOUNTED:
         1. Stainless steel 13-5/8 inch diameter bowl; twin perforated disc eye/face wash heads with protective pop-off spray head covers; integral flow control capable of maintaining uniform flow under varying water supply conditions from 30-90 psig; Chrome-plated 1/2 inch IPS stay-open ball-type valve operated by stainless steel push down handle; coated galvanized steel pipe and fittings; dome type strainer; 1-1/4 inch drain fitting; universal identification sign; inspection tag, and 1/2 inch water supply connection.
      10. EYE/FACE WASH - WALL MOUNTED:
          1. Barrier-free design with stainless steel 10 inch diameter bowl; stainless steel wrap-around skirt; chrome-plated brass spray head assembly with twin, soft flow, eye wash heads and protective spray head covers; integral flow control capable of maintaining uniform flow under varying water supply conditions from 30-90 psig; Chrome-plated 1/2 inch IPS stay-open ball-type eye wash valve hand operated by a large, stainless steel push handle; chrome-plated circular face spray ring; chrome plated brass pipe and fittings; dome type strainer; 1-1/4 inch drain fitting, wall tube and trap; universal identification sign; inspection tag, and 1/2 inch water supply connection.
      11. EYEWASH - WALL CABINET MOUNTED:
          1. Barrier-free design with stainless steel cabinet and doors; lockable, hinged bottom panel for plumbing access; chrome-plated brass spray head assembly with twin, soft flow, eye wash heads and protective spray head covers; integral flow control capable of maintaining uniform flow under varying water supply conditions from 30-90 psig; Chrome-plated 1/2 inch IPS stay-open ball-type eye wash valve activated by pulling door down 90 degree; chrome plated brass pipe and fittings; 1-1/4 inch drain fitting and trap; brass water stop valve; universal identification sign; inspection tag, and 1/2 inch water supply connection.

1. EXECUTION
   * + 1. PREPARATION
          1. Examine roughing-in for plumbing piping systems to verify actual locations of piping connections prior to installation of emergency equipment. Proceed with installation only after unsatisfactory conditions have been corrected.
          2. Coordinate location of emergency equipment with General Contractor to allow identification of required clear floor space area for emergency shower access.
          3. Coordinate location of counter mounted emergency eyewash and eye/face wash fixture with General Contractor for proper drilling/cutting of casework to allow drenching water to spill into sink.
       2. INSTALLATION
          1. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.
          2. All installation shall be in accordance with manufacturer’s published recommendations.
          3. Install in emergency shower, eyewash and eye/face wash equipment in accordance with manufacturer’s published instructions.
          4. Locate emergency equipment on a level surface area for user.
          5. Safety drenching equipment shall not be located within eighteen (18) inches of electrical apparatus, telephones, thermostats, or power outlets.
          6. Emergency shower heads shall be positioned 82 inches – 96 inches from floor. The center of the spray pattern shall be located at least 16 inches from wall or nearest obstruction.
          7. Emergency eyewash nozzles shall be positioned 33 inches- 45 inches from floor and at least 6" from wall or nearest obstruction.
          8. Connect potable water supply having a temperature between 60 degrees F. and 100 degrees F. to emergency equipment. Potable water supply shall be capable of supplying adequate flushing to meet requirements of reference standards.
          9. Provide hydraulic shock absorbers in water supply lines to each emergency shower. Locate and size in accordance with PDI-WH-201 Standard and manufacturer’s published recommendations.
          10. Provide and accessible ball type shutoff valve in individual water supply line serving safety drenching equipment. Valves shall be labeled for identification and locked in the open position.
          11. Provide and install stainless steel escutcheons on piping wall and ceiling penetrations in exposed, finished locations.
          12. Coordinate with General Contractor for location and installation of emergency equipment identification signage and inspection tags.
       3. TESTING
          1. Adjust or replace fixture flow regulators for proper flow.
          2. After plumbing connections have been made, test for compliance with requirements. Verify ability to achieve required flows and temperatures.
          3. Report test results in writing.

END OF SECTION 22 45 00