SECTION 22 33 13 – electric instantaneous domestic water heaters

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. This section covers providing all labor and materials for the complete first class installation of point-of-use electric instantaneous domestic water heaters indicated and scheduled on Contract Drawings complete with all controls, piping, valves, wiring, supports, accessories, testing, and other normal parts required for complete, operable installation that is acceptable to the authorities having jurisdiction.
       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.

Underwriters Laboratories Listings.

2008 Edition of the National Electric Code

* + - 1. QUALITY ASSURANCE
         1. Heaters shall be designed to limit the maximum temperature to avoid scalding possibilities at low flow rates and provide constant set hot water temperatures whether one or multiple faucets are open simultaneously.
         2. Manufacturer Qualifications: Company shall have minimum three years documented experience specializing in manufacturing the products specified in this section.
         3. Water heaters shall be manufactured by a company that has achieved certification to the ISO 9001 International Quality System.
         4. Provide equipment with manufacturer's name, model number, and rating/capacity permanently identified.
         5. Installer Qualifications: Company shall have minimum three 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.
         6. Ensure products and installation of specified products are in conformance with recommendations and requirements of the following organizations:

National Sanitation Foundation (NSF).

National Electric Code (NFPA 70).

* + - 1. SUBMITTALS
         1. Product Data:

Include dimension Drawings of water heaters indicating piping, components and required connections.

Manufacturer's data sheets and Installation Instructions.

Provide wiring diagrams, electrical characteristics, minimum water pressure requirements and connection types.

* + - * 1. Record Documents:

Provide full written description of manufacturer’s warranty.

* + - * 1. Operation and Maintenance Data:

Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.

* + - 1. DELIVERY, STORAGE and HANDLING
         1. Accept products on Site in factory packaging. Inspect for damage. Maintain products in factory packaging until installation.
         2. Provide temporary inlet and outlet caps when not factory provided. Maintain caps in place until installation.
         3. Protect components from damage after installation.
         4. Do not allow use of heater for any reason, other than testing, during the construction phase of this project.
      2. EXTRA MATERIALS
         1. Furnish and hand to Owner a minimum of one heating element for each size and type of heater element provided within this project.
      3. warranty
         1. Water heaters shall be warranted in writing against failure due to leaks of heater body and element assembly under normal use and service for a minimum period of five years after date of Substantial Completion.

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. point of use domestic water heater
          1. Acceptable Manufacturers:

Eemax

Stiebel Eltron

Seisco

All point-of-use water heaters provided within this project shall be the product of one manufacturer.

* + - * 1. Furnish and install instantaneous domestic hot water heaters with dimensions, capacities and electrical characteristics as scheduled on the Contract Drawings and as outlined herein. This Specification describes minimum quality and performance requirements. Variations of system components by the individual referenced manufacturers are acceptable for installation in this project provided they meet or exceed all of the requirements indicated herein, are compatible with the electrical service provided and fit properly in the allocated space.
        2. Water Heater shall be tankless, thermostatic instantaneous type with microprocessing temperature control capable of maintaining set outlet temperature with +/– 1°F accuracy with a minimum water supply pressure of 25 psig.
        3. Unit shall be rated for a maximum operating pressure of 150 psig.
        4. Unit shall have ABS-UL 94Vo rated cover, field replaceable cartridge element, field replaceable filter in the inlet connector.
        5. Heating element shall be iron free, Nickel Chrome material.
        6. Heater shall be fitted with ½” pipe compression nuts (5/8” OD) or 3/8” sleeves. Solder type connections shall not be accepted.
        7. Heater shall have nonadjustable thermostat, factory set at 105 F, unless indicated otherwise on Contract Drawings.

1. EXECUTION
   * + 1. 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 water heaters, piping, wiring and accessories in accordance with the manufacturer’s installation instructions.
          4. Furnish all supports required by the equipment included in this Contract in accordance with the manufacturer’s published instructions.
          5. Furnish and install all necessary valves, strainers, unions, etc. to facilitate proper functioning and servicing of equipment.
          6. Provide dielectric isolation device where copper lines connect to ferrous lines or equipment.
          7. Install heater in a vertical position as close as possible to the hot water outlets with a minimum of 5" of clearance on all sides for servicing. Coordinate location of unit to avoid conflicts with piping, electrical outlets, casework and handicap access to plumbing fixture. Do not install unit where it would routinely be splashed with water.
          8. Install a line size shutoff valve in cold water inlet close to each heater.
          9. Flush water supply line to remove all air, scale and dirt prior to connecting heater.
          10. Take precautions to prevent heat generated by soldering procedures from being transmitted to heater components.
          11. Verify and insure that flow control outlets on faucets being served by water heater correspond with the flow requirements of the installed heater.
          12. Coordinate with Electrical Contractor for power and wiring required. Verify that electrical power is connected to a properly grounded dedicated branch circuit of proper voltage rating and equipped with ground fault interrupter. Each heater shall be provided with an independent circuit. Insure that the correct wire and circuit breaker sizes are provided.
          13. When all plumbing installation is completed, check for leaks and take corrective action before proceeding. Flow hot water until temperature has stabilized. Verify and insure that the water meets scheduled temperature at all outlets. Clean heater water inlet line strainer prior to final inspection of installation.

END OF SECTION 22 33 13