1. GENERAL

1.01 SUBMITTALS

.1 Submit shop drawings/product data sheets for all equipment and associated hardware specified in this Section.

1.02 CLOSEOUT SUBMITTALS

.1 Submit with delivery of heater(s) a copy of the factory inspection and test report for each heater, and include a copy of each report with O&M Manual project closeout data.

.2 Submit manufacturer/supplier installation certification letters as specified in Part 3 of this Section.

.3 Submit, prior to Substantial Performance of the Work, start-up or test data specified in Part 3 of this Section.

2. PRODUCTS

2.01 ELECTRIC DOMESTIC HOT WATER TANK AND HEATER

.1 CSA certified electric domestic hot water tank and heater with model number and performance as specified on drawings, and complete with:

.1 1035 kPa (150 psi) rated (working pressure) steel tank, glass lined, insulated (except for control panel area) with injected minimum R-16 foam insulation, covered with an enamelled steel jacket, and equipped with 40 mm (1-½") dia. NPS brass nipple water inlet and outlet connections, a drain valve, and sacrificial anode rods;

.2 removable multiple immersion heating elements, each consisting of a wire filament in a sealed stainless steel sheath;

.3 ASME rated temperature and pressure relief valve;

.4 factory pre-wired power and control panel.

.2 Equip enamelled steel ventilated control panel with removable glass fibre insulation to cover bare area of tank, a hinged door, multiple knockouts, a ground screw, and following:

.1 terminal block for power wiring connections;

.2 magnetic contactors for heating elements;

.3 adjustable immersion thermostat;

.4 manual reset immersed high temperature limit control for each element;

.5 fuse block with fuses;

.6 element diagnostic panel with LED's for each element to monitor on-off operation of each element;

.7 contacts, relays and any other hardware, compatible with building automation system protocol and required to connect heater(s) to BAS in accordance with BAS control points list.

.3 Equip heaters with factory fabricated type "L" hard copper inlet and outlet manifolds.

.4 Manufacturers

.1 A.O. Smith Water Products Co.;

.2 John Wood (GWS Water Heating Co.);

.3 Rheem Canada Ltd.;

.4 Bradford White Canada Inc.

2.02 ELECTRIC DOMESTIC HOT WATER BOOSTER HEATER

.1 CSA certified electric domestic hot water booster heater with model number and performance as specified on drawings, and complete with:

.1 1035 kPa (150 psi) rated (working pressure) steel tank with a double coating of high temperature glass, rigidly supported anode rods, blanket type glass fibre insulation, an enamelled steel enclosure with control centre hinged door and element and cleanout access panel, 32 mm (1-¼") dia. NPS brass nipple water inlet and outlet connections, a drain valve, and 150 mm (6") high stainless steel support legs;

.2 immersion type screw-in heating elements embedded in magnesium oxide sealed in a tinned copper tube;

.3 ASME rated relief valve;

.4 stainless steel rewired power and control panel with magnetic contactors, element diagnostic panel with LED's, element fuses, an adjustable thermostat, and immersion type high temperature limit control.

.2 Manufacturers:

.1 A.O. Smith Water Products Co.; John Wood (GSW Water Heating Co.);

.2 Rheem Canada Ltd.; Bradford White Canada Inc.

3. EXECUTION

3.01 ELECTRIC DOMESTIC HOT WATER TANK AND HEATER

.1 Drainage Coordination

.1 Coordinate drain requirements of plumbing equipment provided by Mechanical Division and or Owner with location of drains specified in Section 22 13 00.

.2 Installation

.1 Provide an electric domestic hot water tank and heater.

.2 Secure heater in place, level and plumb, on a concrete housekeeping pad, and:

.1 pipe temperature/pressure relief valve outlet to drain;

.2 pipe drain valve outlet to drain;

.3 coordinate installation with electrical trade who will connect heater with power wiring.

.3 Ensure housekeeping pad is keyed to structure and tank assembly is secured to structure by slack cable restraints. Refer to Section 20 05 48.16 - Seismic Controls for Mechanical Systems.

.4 Install inlet and outlet manifolds supplied with heaters.

.5 Set thermostat to produce 48.8°C (120°F) hot water.

.3 System Startup

.1 For equipment/system start-up requirements, refer to Section 20 05 00 – Common Work Results for Mechanical.

.2 For equipment/system manufacturer certification requirements, refer to Section 20 05 00 – Common Work Results for Mechanical. Submit a copy of the letter prior to Substantial Performance of the Work.

.4 Training

.1 Include for 2 hours of on-site training for 2 groups of 6 people. Training is to be a full review of all components including but not limited to a full operation and maintenance demonstration, with abnormal events.

3.02 ELECTRIC DOMESTIC HOT WATER BOOSTER HEATER

.1 Drainage Coordination

.1 Coordinate drain requirements of plumbing equipment provided by Mechanical Division and or Owner with location of drains specified in Section 22 13 00.

.2 Installation

.1 Provide an electric domestic hot water booster heater.

.2 Secure heater in place, level and plumb, and:

.1 pipe temperature/pressure relief valve outlet to drain;

.2 pipe drain valve outlet to drain;

.3 coordinate installation with electrical trade who will connect heater with power wiring;

.4 set thermostat to produce 82°C (180°F) hot water.

.3 System Startup

.1 For equipment/system start-up requirements, refer to Section 20 05 00 – Common Work Results for Mechanical.

.2 For equipment/system manufacturer certification requirements, refer to Section 20 05 00 – Common Work Results for Mechanical. Submit a copy of the letter prior to Substantial Performance of the Work.

.4 Training

.1 Include for 2 hours of on-site training for 2 groups of 6 people. Training is to be a full review of all components including but not limited to a full operation and maintenance demonstration, with abnormal events.

End of Section