

# **SPECIFICATION FOR DOMESTIC WATER HEATERS**

## ***Condensing, Firetube, Gas-Fired Water Heaters with Polymer-Lined Storage Tanks***

Furnish and install a PLATINUM condensing firetube gas water heater(s) as manufactured by PVI Industries, LLC of Fort Worth, Texas. Supply quantities and model numbers as indicated on the plumbing schedule.

### **Gas and Electrical Consumption**

The water heater will operate at 95% thermal efficiency when tested to ANSI Z21.10.3/CSA 4.3. The water heater will comply with the thermal efficiency, standby loss, and all other requirements of ASHRAE 90.1-2001.

### **Pressure Vessel and Heating Surfaces**

The water heater will be constructed and stamped in accordance with Section IV, Part HLW of the ASME code.

The storage section and heat exchanger of the water heater will be National Board Registered for a working pressure of 160 psi.

The heat exchanger will be a firetube design with the combustion chamber and all heating surfaces completely water-backed. The fireside of the combustion chamber will be of boiler-grade steel. The waterside of the combustion chamber will be non-ferrous and sealed with PTFE polymer. The fire tubes will be solid copper. The heating surfaces will be removable by unbolting from the pressure vessel, allowing 100% access to waterside surfaces. Heat exchanger removal will provide a manway sized opening, allowing access to 100% of interior surfaces. All tank connection fittings will be nonferrous and removable from the tank.

### **Tank Lining**

The entire lining will be applied after the tank is completely fabricated and all welding is completed. Lining will be a thermoplastic polymer that is NSF 61 approved and consist of FDA compliant materials. Lining will consist of multiple applications creating a continuous and nonporous barrier with no interruptions or discontinuities; including the tank-to-fitting transitions. Lining will be confirmed to be 100% void-free by the ASTM D-5162 wet electrode standard. Testing will occur only after complete pressure vessel fabrication with all welding completed. Lining will have a dielectric resistance of 1600 volts per mil.

The lined tank will not require anode rods or electronic anodes and none will be used.

### **Burner and Venting**

Combustion will be provided by a pre-mix, fan-assisted, ported stainless steel burner. The gas train will meet the requirements of UL, FM and IRI for water heaters with a maximum input of 399,000 Btu/h.

Water heater will be a category IV, condensing, positive pressure appliance and UL approved for PVC venting material. Water heater will vent through-the-wall unassisted for 100 equivalent feet through four-inch diameter pipe. Appliance will simultaneously be able to accept direct inlet combustion air through up to 100 equivalent feet of four-inch diameter material.

(continued)

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### **Safety Controls**

The heater will be equipped with the following:

- electronic flame monitoring with pre-purge
- programmable electronic temperature control with LED readout
- an immersion temperature limiting device
- an ASME and AGA-rated temperature and pressure relief valve
- and options as selected on standard and optional equipment document PV 6801

### **Warranty Summary**

Storage tank will be covered by a five-year warranty covering manufacturing or material defects, leaks and /or the production of rusty water. Tank coverage will include failure due to scale buildup with no provision or condition for maintenance or inspections and no limitations on water chemistry.

Heat exchanger and combustion chamber will be covered by a five-year warranty covering manufacturing or material defects, leaks, and/or the production of rusty water.

Burner and all heater parts will be covered by a one-year warranty.

Initiation and /or continuation of warranty coverage will not be dependent upon annual inspections, regular replacement of anode rods, or water chemistry.

The entire heater will have a first year service policy, which will cover replacement labor and freight costs under certain conditions. Complete copies of all warranties and service policies; including all exclusions and conditions, will be presented to the owner as part of the submittal package.

### **Finishing**

The storage and heating sections will be completely factory packaged, requiring only job site hookup to utilities, venting, and plumbing. The heater will be insulated, jacketed with a corrosion-resistant polyethylene jacket, and mounted on heavy-duty channel skids. The heater will fit properly in the space provided and installation will conform to all local, state, and national codes. UL listing will allow alcove installation and one-inch clearance from combustible materials.

### **Start Up**

Start up on the unit will be performed by factory trained and authorized personnel. A copy of the start up report will be provided to the owner.

### **Quality Certification and Safety Standards**

The heater will have an independent test laboratory listing to safety standard ANSI Z21.10.3/ CSA 4.3. The water heaters will be manufactured by a company that has achieved certification to the ISO 9001 International Quality System.