Suggested Specifications
Prestige Excellence 110

General Requirements

A. Furnish and install _____ (qty) completely assembled, modulating, sealed combustion, condensing high efficiency, gas-fired boiler(s) with a stainless steel, fire tube heat exchanger with 14 gallon "Tank-in-Tank" indirect fired water heater.

B. Installation of the boiler(s) shall be according to manufacturer's installation instructions and all work shall be completed in a neat and workmanship like manner.

C. The boiler(s) shall be a Triangle Tube Prestige Excellence 110 having a modulating input rating of 110,000 BTUH, an output of 102,000 BTUH on Natural or Propane Gas.

D. The boiler(s) shall operate at a minimum Annual Fuel Utilization Efficiency of 95% and shall comply with the energy efficiency requirements of ASHRAE 90.1, latest edition.

E. The boiler(s) AFUE efficiency shall be verified through a third party testing agency under the guidance of AHRI and listed in the AHRI Certification Directory.

F. The boiler(s) shall be capable of full modulation, with a turn down of 5.5 to 1.

G. The heat exchanger shall contain a water volume of 5 gallons and have a pressure loss of 9 ft at a volume flow rate of 10 gpm.

H. The boiler(s) shall be assembled by an ISO 9001 registered company and the heat exchanger shall bear the ASME "H" stamp according to Section IV of the ASME Boiler and Pressure Vessel Code.

   1. The stainless steel heat exchanger of the boiler(s) is to be hydrostatically pressure tested at the factory in accordance with ASME requirements.

   2. The maximum allowable working pressure is 30 psig water as listed on the ASME rating plate.

   3. The heat exchanger shall be registered with the National Board and contain a registry number and stamp on the ASME rating plate.

I. The boiler(s) shall meet the following regulatory requirements:

   1. The boiler(s) shall be ITS / ETL certified and listed to ANSI Z21.13/CSA 4.9 latest edition test standards for U.S. and Canada.

2. Boiler(s) shall meet or exceed the SCAQMD (South Coast Air Quality Management District of California) Low NOx emission requirement of 14 NG/J.

3. The boiler(s) shall meet Department of Energy guidelines for Energy Star energy efficiency and be listed as such.

Product Specifications

A. Combination Boiler Construction

1. The heat exchanger shall be a fire tube design constructed with 439 grade stainless steel to provide resistance to corrosion at elevated temperatures.

2. The heat exchanger body shall be of welded construction and shall not contain any banding materials, bolts, gaskets or O-rings in the construction.

3. The heat exchanger shall be of a counter flow / vertical design to assure that sediment and any potential lime that may form will fall to the bottom.

4. The boiler combustion chamber shall be sealed and located at the top of the heat exchanger.

5. The boiler(s) flue ways shall be of a vertical design that allows condensate to “wash down” the flue surface preventing potential combustion residue from adhering to the flue ways.

6. The boiler(s) shall be supplied with a gas valve designed for negative pressure regulation.

7. The gas valve on the boiler(s) shall operate with an inlet gas pressure of a minimum 5” w.c to a maximum of 13” w.c and shall be independent of the type of gas (natural or propane). If the inlet gas pressure exceeds the maximum allowable 13” w.c. a 100% lock-up type gas pressure regulator, properly sized, must be installed in the gas supply piping and adjust as to prevent an inlet gas pressure in excess of 13” w.c.

8. The burner shall be a premix combustion type system, made with a burner head constructed of stainless material and able to provide a wide range of modulating firing rates.

9. The boiler(s) shall be equipped with a variable speed blower system to precisely control the fuel/air mixture to provide modulating boiler firing rates for maximum efficiency.

10. The boiler(s) shall be constructed with a heavy gauge steel jacket assembly, painted on both sides.

11. The boiler control shall have an electronic graphical display for boiler set-up, boiler status and boiler diagnostics.

12. The condensate pan, internal flue pipe, and vent/air connections shall be constructed of polypropylene.

B. Water Heater Construction

1. The factory installed 14 gallon "Tank-in-Tank" indirect fired water heater shall consist of two (2) concentric stainless steel tanks.

2. The inner tank shall contain domestic hot water and outer tank shall contain heating system water. This "Tank-in-Tank" design shall allow the inner tank to be self-descaling.

3. The indirect water heater shall have the following connections:

   a) Cold water inlet.

   b) Hot water outlet

   c) Auxiliary connection for recirculation return or Temperature / Pressure relief valve installation.

4. A domestic hot water temperature sensor shall be factory installed in the indirect fired water heater to monitor and maintain the domestic hot water storage temperature.

C. Boiler Controls and Trim

1. All electrical components shall be of the highest quality manufacture and bear a CSA, UL, or UL recognized label.

2. Supply voltage shall be 120 volt / 60 hertz / single phase.

3. Pressure gauge dial that is clearly marked and easy to read.

4. ASME certified pressure relief valve, set to relieve at 30 psig.

5. Low water protection.

6. Factory installed Grundfos UPS 15-78 circulator with 3 speed selector switch.

7. Three way diverting valve to provide Domestic Hot Water priority.

8. The boiler(s) shall be furnished with the "CTRLMax" Control System which provides:

   a) High limit temperature control of 200°F.

   b) Operating temperature limit of 60°F to 188°F.

   c) Flue gas, supply and return water temperature sensors.

   d) Outdoor sensor to provide Outdoor Reset Control.

   e) Optional freeze protection feature.

   f) Domestic Hot Water priority and optional Domestic Hot Water priority timeout feature.

   g) Capability to control up to 3 circulators with each circulator output fully configurable for custom applications.

   h) Alarm and flame status contacts for integration into BMS systems.

   i) Modbus interface for integration into BMS systems.

   j) Capability to accept a 0-10 VDC input signal for external modulation control.

   k) Two space heating call inputs with independent outdoor reset curves.

   l) EZ Setup feature allows the installer to quickly and easily adjust boiler settings.

   m) Graphical display shall have an icon based menu system and use plain text so that error code charts are unnecessary.

D. Venting and Combustion Air

1. The boiler shall be vented with one of the following configurations:

   a) **Direct Vent Sidewall** system with a horizontal sidewall termination of both the vent and combustion air pipes. The vent and combustion air pipes are not required to terminate on the same outside wall.

b) **Direct Vent Vertical** system with a vertical roof top termination of both the vent and combustion air pipes.

c) **Direct Vent Vertical with Sidewall Air** system with a vertical roof top termination of the vent pipe and combustion air being drawn horizontally from a sidewall.

d) **Sidewall Vent with Room Air** system with a horizontal sidewall termination of the vent pipe and the combustion air is drawn from the surrounding area in which the boiler is installed.

e) **Vertical Vent with Room Air** system with a vertical roof top termination of the vent and the combustion air is drawn from the surrounding area in which the boiler is installed.

2. The boiler's total equivalent vent pipe length shall not exceed 45 feet when using 2 inch pipe or 100 feet when using 3 or 4 inch pipe.

3. The boiler's total equivalent combustion air pipe length shall not exceed 45 feet when using 2 inch pipe or 100 feet when using 3 or 4 inch

4. The 2" vent pipe shall be PVC (after first 7' of CPVC), CPVC or Polypropylene (PP). PVC or CPVC of Foam Core construction is not an approved material for vent piping.

5. The 3" or 4" vent pipe shall be PVC, CPVC, Polypropylene (PP), or AL29-4C® Stainless Steel. PVC or CPVC of Foam Core construction is not an approved material for vent piping.

6. The 2", 3" or 4" combustion air pipe shall be PVC, CPVC, Polypropylene (PP), Galvanized or Stainless Steel.

E. Boiler Manuals

1. The boiler(s) shall be provided with complete instruction manuals, including:

a) Boiler Installation and Maintenance Manual.

b) PVC, CPVC, PP & SS Vent Supplement.

c) User's Guide.

d) Control Supplement.

Warranty

A. The boiler heat exchanger and indirect water heater shall carry a ten (10) year limited warranty with up to three (3) year labor allowance.

B. The parts shall carry up to a six (6) year warranty with three (3) year labor allowance (excluding the igniter which shall carry a one (1) year warranty).

Performance Specifications

Boiler Model	Fuel	Input Modulation MBH	AFUE	DOE Heating Capacity MBH	Net AHRI MBH	Water Volume Gal.
Excellence 110	Natural or Propane Gas	20 to 110	95%	102	89	5

Connections/Dimensions/Data

Supply / Return Connections	Gas Connection	Vent & Air Connections	Dimensions	Weight (Empty)	Electrical Requirements
1”	½”	3”	24 7/8” x 23 5/8” x 39 3/8”	190 Lbs	120VAC 60Hz 10A Full Load

Domestic Hot Water Performance/Specifications

10 Minute Peak Flow Gal.	1st Hour Flow GPH	Continuous Flow GPH	Domestic Connections	Domestic Capacity Gal.
55	210	180	3/4”	14

Based on: Domestic - 50°F Inlet / 108°F Outlet
Boiler - 186°F Inlet
Factory Supplied Mixing valve installed