Mascot
Condensing Boiler

Model HT 1.650

Specification

Date:		Bid Date:	
Project #:		Location:	
Project Name:		Engineer:	
Contractor:		Prepared By:	

1. Contractor shall supply and install one (1) or more Laars Heating Systems, hydronic heating boiler(s).
2. Boiler(s) shall be Laars Heating Systems, Mascot, Model No. HT1.650, fully modulating, sealed combustion, low mass, direct vent (concentric vent) or sealed vent boiler(s) with a modulating input of between 73,361 BTU/h (21.5 kW) and 241,600 BTU/h (70.8 kW) and have a maximum rate thermal efficiency of 96%. Boiler(s) shall conform to ANSI Z21.13 - Current Edition, "Gas-Fired Low Pressure Steam and Hot Water Boilers" and be designed and constructed in accordance with the "ASME Boiler & Pressure Vessel Code, Sections II, IV and IX", for a maximum working pressure of 30 psi (207 kPa).
3. Boiler shall be wall-mountable. Wall-mount template shall be shipped with each boiler.
4. Boiler'(s) heat exchanger shall be stainless steel, laser seam welded. HX tubes shall be made of 1 mil 316L stainless steel. The heat exchanger shall be hydrostatically tested to 60 psi (413 kPa), and shall be mounted in a sealed stainless steel combustion chamber. Boiler(s) shall be able to accept up to 30% propylene glycol HVAC anti-freeze, without damage to boiler heat exchanger or other boiler components.
5. Boiler'(s) combustion system shall be pre-mixed, forced draft, combustion and contain a variable speed fan, stainless steel cylindrical burner, modulating air/gas ratio valve and spark ignitor with independent flame sensing electrode. The boiler(s) shall have a NOx level of less than 25ppm.
6. Boiler setup shall be the only thing required to change gas types. No parts changes shall be required for gas type conversions.
7. Boiler(s) shall be capable of being direct vented with concentric pipe up to 33 feet (10m) equivalent length, with either horizontal or vertical termination. Concentric pipe shall be polypropylene inner vent pipe and coated aluminum outer air pipe. The boiler shall also easily accept separated vent and air. Polypropylene, PVC and CPVC pipe shall be approved for vent material for separated vent / air. Maximum air pipe equivalent length shall be 49 feet (15m). Maximum vent pipe equivalent length shall be 262 feet (80m). Intake terminal and vent terminal shall be permitted to be on different locations on the structure.
8. The boiler control shall monitor and control the boiler functions. The control shall have the ability to reset the boiler temperature based on outside air temperature, with the addition of an optional outdoor air sensor. An optional domestic water sensor shall be available for control of indirect water heaters. The control shall have a boiler pump time delay to keep boiler pump running for three minutes after a call for heat is satisfied. A pump exercise feature shall ensure one minute boiler pump run time in every 24-hour period. The control shall aid in freeze protection by firing the boiler and operating the boiler pump when water temperature is 41°F (5°C) or below.
9. The boiler(s) shall have a 2-character alphanumeric display of temperatures and fault codes. Displayed parameters shall be supply water temperature, outdoor temperature, % of PWM signal to fan, fan speed in rpm, supply temperature setpoint, flue sensor temperature. The control shall also display error codes for all facets of boiler operation. The control shall have visual indication of heating mode and presence of flame at the burner.
10. Boiler(s) heat exchanger shall have a ten-(10) year warranty, and other parts shall have a two-(2) year warranty against defects in materials and craftsmanship.

LAARS® Heating Systems Company
A subsidiary of BRADFORD WHITE® Corporation

800.900.9276 • Fax 800.559.1583 ***(Customer Service, Service Advisors)***
20 Industrial Way, Rochester, NH 03867 • 603.335.6300 • Fax 603.335.3355 ***(Applications Engineering)***
1869 Sismet Road, Mississauga, Ontario, Canada L4W 1W8 • 905.238.0100 • Fax 905.366.0130
www.Laars.com