CONFORTO®

Suggested Specifications

Conforto CH-299/399/499

Commercial Condensing Boiler

1.0 General Requirements:

1.1 Provide and Install Boiler(s) in accordance with the plan drawings, written specifications and contract documents.

1.2 All work shall be performed in a neat workmanship like manner compliant with all local code authorities.

2.0 Submittal

2.1 Product Data: Submit manufacturer's technical product data

2.2 Shop Drawings: Submit manufacturer's end assembly drawings indicating dimensions, connection locations, and clearance requirements.

2.3 Wiring Diagrams: Submit manufacturer's electrical requirements for the boiler including ladder type wiring diagrams for interlock and control wiring.

3.0 **Boiler Requirements**

3.1 Boiler shall be wall hung.

4.0 **Acceptable Manufacturers**

4.1 Equivalent units and manufacturers must meet all performance criteria for all fuel options, and will be considered upon prior approval.

5.0 **Certifications & Listings**

5.1 Boiler shall be certified to CSA 4.9/ANSI Z21.13, AHRI.

5.2 Boiler Heat Exchanger shall be National Board registered.

5.3 Boiler shall be constructed in accordance with the American Society of Mechanical Engineers (ASME): Boiler and Pressure Vessel Code, Section 4.

5.4 Boiler shall have an ASME H stamp that is applied to the Heat Exchanger. Each Heat Exchanger shall be independently reviewed by an ASME authorized inspector. A copy of the inspection report shall accompany the boiler. The boiler shall be rated for a maximum allowable working pressure of 87 MAWP. The boiler shall be equipped with a 50 psi relief valve

6.0 **Construction**

6.1 Boiler Heat Exchanger shall be horizontally mounted and made of Stainless Steel Type 316L.

6.2 Boiler Jacket Assembly:

6.2.1 The front cover of the jacket shall be sealed to the boiler chassis with a low loss sealing gasket.

6.2.2 Front cover shall be removable for service.

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6.3 Boiler shall include and internal Factory installed and wired Boiler Loop Pump.

6.4 Burner Components

6.4.1 Gas Valve shall be negative regulation delivering the proper quantity of fuel based on the speed of the combustion air blower. The valve shall be able to operate at gas supply inlet pressures as indicated.

Gas Supply Pressure			
Natural Gas		Propane	
Minimum Inches W.C.	Maximum Inches W.C.	Minimum Inches W.C.	Maximum Inches W.C.
3.0	10.5	8.0	13.5

6.4.2 Combustion air blower shall be equipped with a variable speed blower to regulate the amount of premix gas/air through the blower assembly and into the burner. The on board control system shall regulate the speed of the blower to modulate the capacity of the boiler.

6.4.3 Gas Burner shall be constructed of a stainless steel to provide an even and consistent flame at all levels of modulation.

6.4.4 Ignition system shall consist of a spark generator and a combined direct spark igniter (DSI) and flame sensing rod.

7.0 Control/Safety Devices

7.1 Boiler shall utilize a control and user interface with LCD text and graphics display that provides boiler operational/status information, self-diagnostic features, boiler operational history, outdoor air sensor, and DHW Indirect tank priority.

7.2 Control system shall continuously monitor the boiler during operation and standby modes. The control shall operate in such a manor to receive input data from the supply, return and outdoor air temperature sensors and adjust the modulation rate accordingly.

7.3 Boiler's control system shall consist of the following safety devices factory installed on the boiler:

7.3.1 Safety devices factory installed on the boiler: Supply and Return water temperature sensors, high limit temperature sensor, vent temperature sensor, heat exchanger temperature limit, and Low Water Pressure sensor.

7.3.2 The boiler control shall have Cold Start compensation and 7 second flame stabilization period.

7.3.3 The boiler control shall have an Anti-Wind function that increases fan speed to reduce the risk of flame loss.

7.3.4 The boiler control shall be capable of modulating the boiler loop pump speed to compensate for load conditions.

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7.4 The boiler shall be equipped with; a temperature/pressure gauge, ASME certified pressure relief valve.

7.5 CSD-1 option which consists of the following additional field installed controls: Manual reset high limit device, UL Listed Probe Style manual reset Low water cut-off.

7.6 Control can accept 0-10V input to manage heating set-point or heating power level.

8.0 Combustion Air And Flue Vent Exhaust

8.1 The boiler shall be certified for:
- 8.1.1 Coaxial venting
- 8.1.2 Direct Venting
- 8.1.3 Two-Pipe Venting
- 8.1.4 Single Pipe Venting
- 8.1.5 Common Venting

8.2 Venting shall be constructed of approved materials and installed as per the manufactures written instructions, plan drawings and all applicable local code authorities. The combustion air inlet and flue gas exhaust shall directly connect to the boiler at the locations labeled. Boiler shall have the front removable jacket in place during operation. The jacket can be taken off during commissioning and service per the manufactures written service and kit instructions. The flue shall be approved Polypropylene, PVC or CPVC terminating with the manufacturers specified vent termination. The air inlet must terminate as per the manufacturer's instruction with the manufacturer's specified air inlet.

8.3 The boiler shall inculde an internal flue gas valve to prevent recirculation of flue gas.

9.0 Condensate Drain

9.1 Boiler shall be equipped with a corrosion resistant flue collector with factory equipped drain trap. The drain line external to the boiler shall be constructed of approved materials and installed as per the manufacturers written instructions, plan drawings and all applicable local code authorities.

10.0 Electrical Connections

10.1 Boiler shall be equipped with Factory wired 5' appliance cord with male plug end.

10.2 Supply voltage 120 volts 60 HZ - 15 amp minimum size circuit.

10.3 The boiler shall have terminals for a system pump and a domestic hot water pump. The terminals for these pumps shall be rated for 120 volts with a 1 amp FLA connections

10.4 The boiler shall have separate Line voltage and Low voltage terminal strips with clearly marked connections for Central Heat Thermostat, DHW Sensor/Aquastat, Outdoor Sensor, and Remote Safety Devices.

10.5 Boiler shall have 0-10 V Input Analog and also have Open Therm protocol for thermostat communication.

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11.0 Quality Assurance

11.1 Warranty - Factory Standard Warranty for commercial applications is an 8-year limited warranty on heat exchanger, 3-year limited warranty on parts.

12.0 Boiler Manuals

12.1 The boiler shall be provided with a complete set of instructions and reports as follows:

Installation and Operation Manual (IOM)

Repair Parts Manual

User's Manual

13.0 Optional Equipment

- Coaxial Venting components
- External Manual Reset High Limit and Low Water Cut Off Controls (CSD-1 compliant)
- Outdoor air sensor
- Indirect Tank Sensor
- LP Conversion Kit