Suggested Specifications Dunkirk DWB Copper Heating Boiler - 100/130

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, including rated capacities of selected model, weights (shipping, and installed), installation and start-up instructions, and furnished accessory information.
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 provide hot water for heating zones and shall include separate dedicated connections to provide hot water to an indirect tank.
3.2 Boiler shall accept a wired sensor to control an indirect tank and provide temperature reporting of the indirect tank.
3.3 Boiler shall be certified for Category I and Category III operation.
3.4 Boiler shall be a wall hung model. An optional floor mounting stand shall be available from the manufacturer. Boiler shall be factory fire tested.

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 by CSA, AHRI
5.2 Boiler shall be constructed in accordance with the American Society of Mechanical Engineers (ASME)
5.3 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. The boiler shall be rated for a maximum allowable working pressure of 43.5 psig. The boiler shall be equipped with a 30 psig relief valve.

6.0 **Construction**
6.1 Boiler heat exchanger shall be constructed of copper tube with copper fins, stainless steel support plates and be covered with a high temperature protective coating.
6.2 Burner Components
   6.2.1 Gas valve shall be a modulating valve capable of firing from 100% input firing rate to 33% input firing rate.
6.2.2 Induced draft blower shall be variable speed and controlled by a PCB that uses an air pressure transducer to vary the induced blower speed.

6.2.3 Burners and manifold shall be constructed of stainless steel.

6.2.4 Ignition system shall be direct spark single rod flame sensing.

6.2.5 Boiler shall include an automatic 3 way diverting valve to allow Domestic Hot Water Priority operation.

6.2.6 Boiler shall include an internal pressure activated bypass loop to eliminate the need for primary secondary piping.

6.2.7 Boiler shall include an internal factory installed and wired circulator pump.

6.2.8 Boiler can connect directly to heating systems of 8ft. head or less without an external circulating pump.

7.0 **Control System**

7.1 Control system shall be PCB integral controller with an LCD digital display that also includes graphical interface.

- Control will sense supply water temperature and adjust firing rate of the boiler to deliver amount of heat needed.
- Control will sense and display supply water temperature and indicate by icon when boiler is in central heating or domestic water mode.
- Control shall display the temperature of the indirect tank when used.
- Control can accept wired Outdoor Air sensor and have field selectable reset curves.
- Control shall continuously monitor boiler during operation and standby modes. Control shall operate in such a manor to receive input data from dual temperature sensor, air pressure transducer, and outdoor air temperature sensors when used to adjust the modulation rate accordingly.
- Control can power and accept input from field supplied LWCO device.

8.0 **Combustion Air And Flue Vent Exhaust**

8.1 Boiler shall be either Category I or Category III vented with materials compatible with those standards, and installed as per the manufacturer’s written instruction, plan drawings and all applicable code authorities.

8.2 The flue gas exhaust shall connect directly to the boiler at the location labeled.

8.3 For Category III applications boiler shall be capable of venting 65 ft equivalent length in 3” stainless pipe.
9.0 **Electrical Connections**

9.1 Supply voltage 120 volts 60 HZ 12 amp minimum size circuit. Boiler shall have factory wired and installed cord with male plug end 6 feet long.

9.2 Boiler shall have Low voltage terminal strips with clearly marked connections.

10.0 **Quality Assurance**

10.1 Warranty – boiler shall be supplied with written manufacturer’s 15 year warranty on heat exchanger and 2 years on all other parts.

10.2 Factory testing – boiler shall be factory test fired.

11.0 **Boiler Manuals**

11.1 The boiler shall be provided with a complete set of instructions as follows:

- Installation and Operation Manual (IOM) that includes Repair Parts
- User’s Manual