Ultra Commercial 550 & 750

SUGGESTED SPECIFICATIONS

I. **General Requirements**

A. Furnish and install _____ (qty) packaged, modulating, sealed combustion, power-vented, high efficiency gas-fired boiler(s) with cast aluminum sectional heat exchangers that use outside or inside air for combustion.

B. Install packaged boiler unit(s) according to manufacturer's installation instructions. All work to be done in a neat and workmanlike manner.

C. _____ (quantity) Weil-McLain Ultra-_____ (size), packaged boiler(s) capable of burning natural or propane gas.

D. Boiler(s) shall have I=B=R Hydronic Institute gross output at 100% fire rate _____ MBH per boiler.

E. Boiler(s) shall be 93% minimum I=B=R thermal efficient as required by BTS 2000.

F. Boiler shall be capable of full modulation firing with a turn down of up to 5 to 1.

G. Boiler(s) shall be manufactured by ISO 9001 registered company to conform to Section IV of the ASME Boiler and Pressure Vessel Code.

1. Sectional cast aluminum block to be fire tested and hydrostatically pressure tested at factory in accordance with ASME requirements.
2. Maximum allowable working pressure 80 PSIG water as listed on the rating label.

H. Regulatory Requirements

1. Boiler(s) shall meet or exceed the SCAQD (South Coast Air Quality District of California) Low Nox emission requirement of 40NG/J.
2. Boiler(s) and controls to comply with applicable regulations.
3. Boiler(s) shall be fully factory packaged in acceptance to ASME CSD-1.

II. **Product**

A. Acceptable boiler manufacturer(s) include(s):

1. As specified in Part I, Paragraph C.
2. Other manufacturer or other Weil-McLain boiler(s) must comply with specifying engineer's requirements, including:
   (a) Full intent of these specifications, and
   (b) Provide complete submittal including literature, manuals, and wiring diagrams, fuel piping diagrams, and list of similar installations. The alternate must be of similar size and footprint, piping configuration, clearance requirements and heating surface.
   (c) Submittal presented to engineer at least seven working days before bid opening for approval. Substitutions are not permitted after contract is awarded.

B. Boiler Construction

1. Boiler(s) heat exchanger:
   (a) Cast aluminum sectional block heat exchanger.
   (b) Factory Assembled and Tested.

2. Boiler(s) main components:
   (a) The combustion chamber will be sealed and located at the top of the block casting which will be of counter flow design, to assure that sediment and any lime that might form will fall to the bottom, away from the crown sheet area.
   (b) Boiler(s) shall be supplied with a gas valve designed with negative pressure regulation (fan venturi effect "pulls" gas through valve rather than gas pressure “pushing” gas through valve). This enables the boiler to operate in a safe condition at a derated output, even if the inlet gas pressure should drop to as low as 3.5 inches W.C. The inlet (natural) (propane) gas pressure to the boiler gas valve should be a minimum of 3.5” W.C. and a maximum of 14” W.C. If inlet gas pressure exceeds 14” W.C., a 100% lock-up type gas pressure regulator of adequate size must be installed in gas supply piping and adjusted to prevent pressure in excess of 14” W.C.
   (c) The burner shall be premix combustion type, made with stainless steel and a woven metal fiber outer covering providing a wide range of modulating firing rates.
   (d) The boiler shall be equipped with a variable speed blower system, capable of modulating the boiler firing rate from 100% to 20%.
   (e) The boiler shall be equipped with a device capable of controlling the air/fuel ratio through a 5 to 1 turndown ratio.
   (f) The control system shall have an electronic display for boiler set-up, boiler status, and boiler diagnostics.

C. Venting and Combustion Air
   1. Boiler(s) must be capable of using outside air piped directly to boiler for combustion. Inlet and termination of these pipes must be connected to either through-the-roof or sidewall terminations as recommended by the manufacturer.
   2. Internal vent pipe must be cast aluminum.
   3. The boiler shall be direct vent or direct exhaust using Schedule 40 PVC, ABS or CPVC.
   4. The boiler must have an integral condensate collector in the vent adapter to capture condensate from the vent system.

D. Boiler Trim
   1. All electrical components to be high quality manufacture and bear UL label.
   2. Boiler must be CSD-1 compliant with factory report for ASME CSD-1.
   3. Water boiler(s) controls furnished:
      (a) High limit temperature control with manual reset (190 degrees F maximum allowable boiler water temperature).
      (b) Combination pressure-temperature gauge. Gauge dial clearly marked and easy to read.
      (c) ASME certified pressure relief valve, set to relieve at 30 (optional 50 or 80) PSIG.
      (d) Flue gas, outlet water temperature, and return water temperature sensors.
      (e) Low water protection with manual reset.
      (f) High and Low gas pressure switches with manual reset and indicator lights.
      (g) Built-in freeze protection.

4. Boiler Control to be UL 353 Listed with:
   (a) 4 pump contacts.
   (b) Indoor outdoor reset.
   (c) MBS function.
   (d) Variable temperature zone that require NO MIXING valves.
   (e) Multiple LCD digital temperature access points including supply, return, system temps, flue gas temp.
   (f) LCD display and keypad access.
   (g) Alarm contact includes flame fail, high temp and LWCO.
   (h) Remote modulation capable for MBS/ BAS.
   (i) Capable of controlling addition multiple boilers by either sending 0-10 volt DC signal or contact closure.

E. Boiler Manuals
1. The boiler(s) shall be provided with complete instruction manuals, including:
   (a) Boiler Installation Manual.
   (b) Users Manual.
   (c) Factory report for ASME CSD-1.