**SlimFit® High Efficiency Gas Boiler
Models 550 & 750 MBH**

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I. **General Requirements**

1. 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
2. Install packaged boiler unit(s) according to manufacturer’s installation instructions; All work to be done in a neat and workmanlike manner
3. (quantity) Weil-McLain SlimFit - (size), packaged boiler(s) capable of burning natural or propane gas
4. Boiler(s) shall have an AHRI gross output at 100% fire rate of MBH per boiler
5. Boiler(s) shall be 94+% minimum AHRI certified thermal efficient as required by BTS 2000
6. Boiler(s) shall have an independent laboratory rating of for Oxides of Nitrogen (NOx) to meet the requirements
of South Coast Air Quality Management District in Southern California and the requirements of Texas Commission on Environmental Quality
7. Boiler shall be capable of full modulation firing with a turn down of up to 5 to 1
8. Boiler(s) shall be manufactured to conform to Section IV of the ASME Boiler and Pressure Vessel Code
9. Sectional cast aluminum block to be fire tested and hydrostatically pressure tested at factory in accordance with ASME requirements
10. Maximum allowable working pressure 80 PSIG water as listed on the rating label
11. Boiler(s) and controls to comply with applicable regulations
12. Boiler(s) shall be fully factory packaged in acceptance with 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:
3. Full intent of these specifications
4. Provide complete submittal including literature, manuals, wiring diagrams, fuel piping diagrams, and a list of similar installations; Any alternate must be of similar size and footprint, piping configuration, clearance requirements and heating surface
5. 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:

1. Cast aluminum sectional block
2. The boiler must have non-metallic condensate collector to capture condensate from both, the vent system and heat exchanger

2. Factory Assembled and Tested

3. Boiler(s) main components:

1. 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
2. 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); Negative pressure regulation enables the boiler to operate in a safe condition at 3.5”W.C. inlet gas pressure; The inlet (natural

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or 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.

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1. The burner shall be premix combustion type, made with stainless steel and a woven metal fiber outer covering to provide a wide range of modulating firing rates
2. The boiler shall be equipped with a variable speed blower system capable of modulating the boiler firing rate from 100% to 20%
3. The boiler shall be equipped with a device capable of controlling the air/fuel ratio through a 5 to 1 turndown ratio
4. The control system shall have an electronic display for boiler set-up wizard, boiler status, boiler diagnostics and typical heating systems presets

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 PVC, CPVC, PP or SS (AL29C-4C)
4. Common venting is now allowed in an engineered Category II vent system on the commercial boilers sizes 550 MBH and 750 MBH under the following conditions: maximum number of boilers allowed to be, connected to a common duct is 8 (eight), all boilers in the common vent system, vertical vent only and direct exhaust (combustion air from the boiler room) only should be considered

D. Boiler Trim

1. All electrical components to be of a high quality and bear UL label
2. Boiler must be CSD-1 compliant with factory report for ASME CSD-1
3. Water boiler(s) controls furnished:
4. High limit temperature control with manual reset (190 degrees F maximum allowable boiler water temperature)
5. Combination pressure-temperature gauge; Gauge dial clearly marked and easy to read
6. ASME certified pressure relief valve set to relieve at 30 (optional 50 or 80) PSIG
7. Flue gas, supply water temperature, and return water temperature sensors
8. Low water protection with manual reset
9. High and low gas pressure switches with manual reset and indicator lights
10. Built-in freeze protection

. Boiler Control to be UL 353 Listed and have the following features:

1. Express set up wizard and fully customizable options
2. Modbus as standard and BACnet as an option
3. Preset typical heating systems
4. Ability to control additional boilers by sending 0-10 volt DC signal or contact closure
5. Up to 8 boilers cascading / lead-lag operation and boiler rotation for equal run hours
6. Multiple boiler operation with up to 24 circulators
7. 4 pump contacts per boiler
8. Outdoor temperature reset and warm weather shutdown
9. Variable temperature zones that require no mixing valves
10. Multiple LCD digital temperature access points including supply, return, system temperatures, and flue gas temperature
11. Color coded LCD display and keypad access

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1. Alarm contacts that include flame fail, high temperature and low water cut off

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1. Boiler schedule and contractor information
2. Ignition control
3. Adjustable priorities

E. Boiler Manuals

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

1. Boiler Installation Manual
2. User Manual
3. Manufacturer’s Data Report for ASME CSD-1

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