# Questions and Answers Document 1
# W50S8G-26-B-A001

9 June 2026

Q1. Could you please advise if there are specific specifications or regulatory standards that apply to this project's requirements?
A1. Yes, amendment 1 has been issued to cover the specifications and regulatory standards for this project.

Q2. Please identify the existing Building Automation System manufacturer and front-end platform serving Building 1047. Clarify the extent of the required "front-end upgrade" and define the acceptance criteria for the required "optimizations."

A2. The BMS is Reliable Controls. Our manufacturer rep/contractor is Epic Controls they are familiar with the system and will be able to provide the Front-end upgrade and Optimizations. The front-end upgrade will be new graphics for the new boiler and any associated equipment installed. The acceptance criteria is below for a fully functional BMS when work is complete.

When replacing two boilers and their associated equipment, the Building Management System (BMS) must be optimized to maximize plant efficiency, maintain redundant safety interlocks, and ensure seamless communication between the new boilers and the master control network. The critical acceptance criteria required to verify that the upgraded BMS optimizes boiler plant operations, delivers expected energy savings, and integrates reliably with existing facility infrastructure.

## Technical Acceptance Criteria for BMS Optimization

To ensure the new boiler plant operates at peak efficiency, the BMS optimizations must meet the following criteria:

| Optimization Area | Technical Requirement | Acceptance Criteria |
|---|---|---|
| Lead/Lag Sequence Control | Automated equal run-time rotation and load-based sequencing for two boilers. | BMS must automatically rotate the lead boiler weekly or after a user-defined threshold of operating hours. When the lead boiler cannot meet demand (indicated by supply water temperature dropping below setpoint for over 15 minutes), the lag boiler must automatically start and modulate to share the load. |
| Outdoor Air Reset (OAR) | Adjusts hot water loop supply temperature based on outside air temperature. | The BMS must dynamically reset the hot water supply temperature setpoint linearly between a high limit (e.g., 180°F at 20°F outdoor temperature) and a low limit (e.g., 140°F at 60°F outdoor temperature). Deviation from the calculated curve must not exceed ±2°F. |
| Variable Primary Flow Integration | Modulation of variable speed pumps based on | Pump speeds must modulate to maintain a system DP setpoint at the most hydraulically remote run. |

| | | |
|---|---|---|
| | system differential pressure (DP) or temperature delta ( T). | Minimum flow bypass valves must remain closed unless loop flow drops below the minimum allowable flow rate specified by the boiler manufacturer. |
| Burner Modulation & Demand Tracking | Continuous tracking of building load to minimize short-cycling. | The BMS must monitor the demand load and modulate the boiler burners smoothly rather than utilizing on/off cycles. Under steady-state building loads, a single boiler must not cycle on and off more than twice per hour. |
| High-Level Communication Protocol | Direct native communication interface between the boiler internal controllers and the main BMS. | The BMS must integrate natively with the boilers via Modbus TCP/IP or BACnet MS/TP. All write commands (setpoints, enable/disable) and read points (firing rate, flame status, fault codes, supply/return temperatures) must map correctly to the BMS graphics without latency exceeding 2 seconds. |

## Functional & Performance Integration Testing

Before final sign-off, functional testing must be conducted to prove the interactive capabilities of the optimized systems.

| Test Phase | Test Objective | Verification Process & Success Standards |
|---|---|---|
| 1. Pre-Functional Checkout | Verify physical installation and basic point-to-point wiring. | Point-to-point verification of all physical inputs/outputs (I/O). The contractor must confirm every sensor is calibrated, valves stroked 0–100%, and hardwired safety interlocks (e.g., low water cutoff, high-limit aquastat, emergency stop) function independently of the BMS software. |
| 2. Emergency & Failover Modes | Verify system resilience and safety during unexpected outages. | Simulate a loss of main power, loss of network communication, and primary pump failure. Upon pump failure, the backup pump must start within 10 seconds. Upon network communication loss, the boiler local controllers must safely revert to default local setpoint control. |
| 3. Integrated Load Testing | Verify smooth transition between single and dual boiler operations. | Force the plant into a high-demand scenario. The BMS must smoothly ramp up the lead boiler, enable the isolation valve of the lag boiler, purge/start the lag boiler, and balance the load between both units without causing system pressure spikes or temperature drops greater than 5°F. |
| 4. Alarm & Safety Notification | Verify fault management, logging, and critical system alarms. | Trigger simulated alarms (e.g., flame failure, high temperature, combustion air damper failure). Critical safety alarms must generate a high-priority BMS event, initiate local audible/visual alarms, and trigger immediate shutdown sequences. |

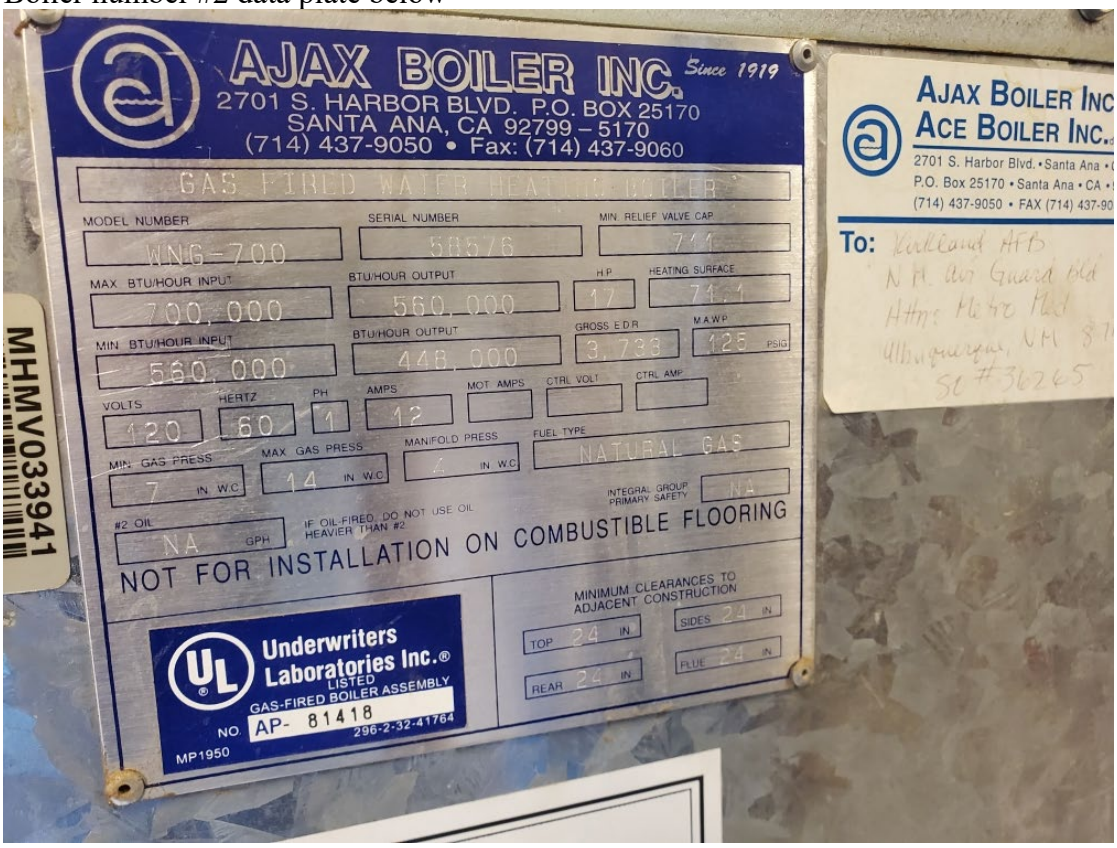
# Documentation & Deliverables Requirements

The contractor must provide a complete package of project documentation to ensure long-term maintainability.

| Deliverable | Required Content | Format & Standard |
|---|---|---|
| As-Built Control Drawings | Updated electrical schematics, network diagrams, and physical I/O wiring. | AutoCAD or PDF format, depicting exact wiring terminations, panel locations, and network routing. |
| Sequence of Operations (SOO) | Comprehensive written narrative of control logic, setpoints, and loops. | Plain text / PDF document detailing lead/lag logic, outdoor reset curves, PID tuning parameters, and safety interlocks. |
| Commissioning & TAB Reports | Certified reports showing actual system performance compared to design criteria. | Test, Adjust, and Balance (TAB) and functional performance test reports signed by a certified Commissioning Agent. |
| Operations & Maintenance (O&M) | User manuals for the optimized BMS interfaces, controllers, and hardware. | Digital and physical binders detailing maintenance schedules, troubleshooting steps, and replacement parts lists. |

Q3. What are the existing boiler capacities? Please include: existing AJAX model numbers, input MBH, output MBH, and existing design temperatures
A3. Boiler number #1 data plate below

Boiler number #2 data plate below




Q4. Are the boilers primary-secondary or variable primary?
A4. Variable

Q5. Does the base own the gas meter, or does it belong to the local utility?
A5. Base owns it

Q6. Does the base own the gas meter, or does it belong to the local utility?
A6. Duplicate see answer #5

Q7. Are existing vents reusable?
A7. Yes

Q8. Is temporary heating required during construction: and are there any restrictions like outage windows or maximum-allowed downtime?
A8. No temp heating. Goal is to have everything restored ASAP. Get everything installed and completed before winter.

Q9. Are there drawings that we can have for this project?
A9. Yes the drawings have been added as an additional attachment.

-- End Questions and Answers 1 (9 June 2026) --