ATTACHMENT D
ASD AUTOMATION PERFORMANCE SPECIFICATIONS

Revision History

Rev 1: Initial version, providing framework for further elaboration in later revisions. CDP 5/19/25.

Rev 2: Changed building identifiers to numerical values instead of letters. Added management station interface section. Cleaned up formatting. CDP 1/28/26

Object / Device / Point Naming

- Automation level network device naming (highest level, these devices communicate with the building management system directly, referred to as “field panels”)
    - Building identifier + node identifier
    - Example: 120.NODE01 – Birchwood Elementary School, field panel number one.
    - Panel descriptors should include location and equipment served.
    - A list of building numerical identifiers will be provided to the vendor for reference.
- Field panel point naming:
    - Building identifier + location served + equipment + point
    - Example: 114.L1A.AHU01.SAT – Aurora Elementary School, Level 1 area A (L1 can be omitted if the building is single story or if the AHU serves multiple levels), air handling unit number 1, supply air temperature.
    - For equipment that serves multiple locations or the entire building in general, like a boiler plant, the location served identifier can be dropped.
    - Example: 114.BLR01-02.HWST - Aurora Elementary School, boilers one and two, heating water supply temperature.
    - A list of common point identifier acronyms will be provided to vendors for reference.
- Field level device naming (secondary level, these devices communicate with the field panel directly and the building management system indirectly).
    - Building identifier + location served + equipment
    - Example: 250.L1B20.VAV01 – Lake Otis Elementary School, level 1 area B, room 20 (L1 can be omitted if the building is single story) variable air volume unit number 1.
- Vendors will use ASHRAE BACnet standard engineering units for all points.

Trending

- All physical IO shall be trended. Virtual IO will be trended if it makes sense in terms of troubleshooting or data capture.
    - Example: A supply air temperature setpoint should be trended in relation to the supply air temperature. A boiler plant header setpoint shall be trended in relation to the header temperature. Occupancy shall be trended to determine AHU status. If energy monitoring is desired virtual points that compile this data shall be trended.
- In general, analog points shall be trended by fifteen-minute intervals and digital points shall be trended by change of value (COV). A rule of thumb is that if the point is likely to have multiple COV’s in a short period of time the point should be trended in time intervals. If the point is unlikely to change significantly over time it should be trended based on COV.
- Commissioning often requires trends that are beyond the scope of this standard. After commissioning is completed, the vendor shall remove trends in excess of what is outlined in the standard.

Programming

- Program naming:
    - Building identifier + node identifier + program identifier
    - Example: 820.NODE03.BLR01-03 – Dimond High School, field panel number 3, boiler plant program.
- Programs shall follow vendor specific standards to be determined between ASD and the selected vendor.
- Full training on how to read, write, and modify system programming shall be provided by the vendor.
- Full administrative access shall be provided to ASD to modify programming and reconfigure the system architecture as necessary. Documentation or training will be provided to meet this requirement.
- Minimize out of panel point control as much as possible. Points being controlled over the network should be limited to only what is strictly necessary.

Sequencing Requirements

- Individual equipment sequencing will be determined between the vendor, the engineering consultant, and ASD, to follow industry standards and best practices for efficient, reliable, equipment control.
- ASD specific sequencing requirements:
    - Critical alarms shall be routed to Guardian Security (critical alarm points defined in the database requirements section).
    - A common building low temperature alarm shall be generated if any measured zone temperature falls below 56 Deg F or the boiler supply temperature falls below 100 Deg F. Alarm is active when the measured outside air temperature is below 50 Deg F and disabled when it is above 52 Deg F. Provide a three-minute delay on alert or clear condition.
    - Interior lighting shall be active when the security system is disarmed or an active fire or security alarm is present. The interior lighting shall be inactive ten minutes after the security system has been armed and no emergency condition is present.
    - Exterior lighting shall be active when the security system is disarmed and the photocell indicates that daylight is not present or in the event of a fire alarm or security alarm. Exterior lighting can also be enabled by the remote receiver for a period of two hours if the receiver is triggered. If all these conditions are not present, the exterior lighting will be disabled.
    - In the event of a fire alarm all ventilation equipment shall shut down. In the event of a phase loss all three phase motors shall be disabled.
    - Equipment shall have the capability to perform night heating mode in order to keep the space from entering a freeze condition. Night heating shall enable when a zone falls below 62 Deg F and will disable once the zone is above 65 Deg F.

O&M Requirements

- An electronic copy of the O&M shall be provided to ASD after project completion and linked in the management station for easy access.

Network Requirements

- BACnet IP communication is desired for interoperability between vendors.
- A BACnet instance number shall be utilized in the following format:
    - Field panels shall be based on the second octet of the assigned building IP address.
    - Example: 730.NODE01 – 10.39.29.50 – 390100. 340.NODE04 – 10.217.29.54 – 2170400.
    - Lower-level network numbers and instance numbers below the field panel will utilize the panels instancing scheme to define devices.
    - Example: 320.NODE02 – 10.210.29.50 – 2100200 – FLN Network number 21002 – first FLN device instance number 2100201.
- The ALN network number for devices at ASD is 100.
- Always double check with ASD before bringing BACnet devices online so that we can confirm that we do not have instance number conflicts with other vendors.
- When considering integrating to a device, BACnet is preferred and Modbus can be utilized if BACnet is not available.
- Integrations are primarily used to monitor ONLY. Direct control of vendor equipment via an integration shall be strictly limited and approved only on a case-by-case basis.
- Field level networks may utilize RS485 wiring and communication protocols. ALN networks shall utilize CAT 6 Ethernet.

Hardware Requirements

- Hardwire connections are required for direct control of IO. Integrating to a VFD and using the communication integration to start, stop, or modulate the speed of the drive, is an example of an unacceptable configuration.
- Hardware or software near the end of its support life cycle shall not be installed. Whenever possible, utilize the newest hardware within a vendor's catalog. If the price is substantially higher, speak with ASD about options.
- All dampers, heating coils, or any other modulating hardware shall fail to the heating position.
- Filter maintenance pressure switches are not required.
- Duct pressure safeties required for VAV systems. Auto reset device, soft lockout in programming. Wired to VFD to shut down on a safety trip.
- Low temperature detector required. Auto reset device, soft lockout in programming. Wired to VFD to shut down on a safety trip.
- Room temperature sensors in high traffic areas, such as corridors, shall be flush mounted.
- All terminal devices with a heating coil shall have a downstream temperature sensor. Sensor accuracy is not of primary concern; this is mainly for troubleshooting purposes.
- All installed field panels shall include spare IO capacity to plan for possible expansion or additions.
- Utilities, such as energy, gas, and water, shall be monitored.
- Phase loss monitoring shall be installed on all buildings.

Alarming

- Critical alarms shall alert Guardian security and are included in remote notification.
    - Building freeze (as described in the sequencing section).
    - Critical pump failures (both pumps failed).
    - Low system glycol/water.
    - Boiler failure.

- Alarm categories are assigned based on severity of the alarm condition. In situations where direct equipment damage or personal injury may occur, these are the highest priority. Examples would include any of the critical alarms, situations where a freeze condition of equipment is possible, or life safety events like a fire alarm.
- Medium alarms would be when a singular pump in a pump set fails, an exhaust fan fails, or a room temperature is out of range. These are concerning, but not critical in nature.
- Low alarms are maintenance alarms, such as filters that need to be changed or excessive run hours for example.

Training Requirements

- At the completion of a project the technician shall perform a walkthrough of the building and provide an overview of the system. The technician shall provide information on where various components are located, possible pitfalls in the design or sequencing, and answer questions as they arise.
- Vendor specific training on the software will be provided at regular intervals for new products and software.
- Training sessions shall not exceed four hours on any given day with the same group of individuals.

Installation Requirements

- Labelling requirements:
    - All conductors shall be labeled to denote point terminations on their respective field panel.
    - All physical IO points shall be labeled in the field. For devices in the ceiling grid, a label shall be placed on the grid visible from below.
    - All field panels, transformers, and relays shall be labeled. Relays should be labeled in reference to what they serve.
    - A panel layout and termination legend shall be included in every panel enclosure.
- Mechanical requirements:
    - Isolation valves shall be installed in conjunction with wet differential pressure transducers for ease of replacement on device failure.

Graphical Requirements

- Graphics shall include the following components:
    - All physical IO and a depiction of mechanical systems in a way that is comprehensible and straightforward.
    - Primary adjustable system setpoints and provide a logical navigation scheme.
    - Equipment dashboards that give a quick overview of a building or set of systems, such as the air handlers, are encouraged.

Management Station Interface

- The building management platform shall be accessible wherever an ASD network connection is possible.
    - Example: When a technician enters a school and his laptop connects to the ASD wireless signal.
- Ideally this will be achieved via a web server connection to the vendor's management software.

- A public facing website shall be considered pending approval from ASD.
- A VPN connection shall be considered pending approval from ASD.
- Administrative access shall be provided for the management station primary server software package.

ATTACHMENT E
OFFEROR'S CHECKLIST

A. GENERAL

Proposers/Offerors are advised that, notwithstanding any instructions or implications elsewhere in this RFP, only the documents shown and detailed on this Check List need to be submitted with and made part of their proposal/offer. Proposers/Offerors are hereby advised that failure to submit the documents shown and detailed on this Check List may be justification for rendering the proposal/offer non-responsive.

B. REQUIRED DOCUMENTS FOR OFFER PROPOSAL SUBMISSION

1. Attachment A, Proposal Transmittal Form. Submit the completed Proposal Transmittal Form as the first page of the proposal.

2. All addenda issued should be acknowledged by manually signing the Addenda sheet and submitting it prior to the offer opening, or by indicating acknowledgement in the space provided on the Attachment A, Proposal Transmittal Form.

3. Attachment B, Fee Proposal Form (Schedule A). The completed Fee Proposal Form (Schedule A) must be submitted as part of the proposal in a separate sealed envelope that has been clearly marked on the outside as (a) the "FEE PROPOSAL FORM which has been submitted in response to RFP 2026-622 BUILDING AUTOMATION SYSTEMS" and (b) the offeror's name.

4. Attachment C, Mandatory Requirements

5. Attachment D, ASD Automation Performance Specifications

6. Attachment E, Offeror's Checklist