

ADDENDUM #7

Snowden Server Room Renovation Project No. ANC-C-25-0010

Date: May 16, 2025

To All Plan Holders:

The following changes, additions, clarifications, and/or deletions are hereby made a part of the Contract Documents for the above noted project, fully and completely as if the same were fully contained therein. All other terms, conditions, and specifications of the original Invitation to Bid remain unchanged.

This amendment must be acknowledged in the space provided on the Bid Schedule.

The Submittal Date and Time is CHANGED. New submittal date is: May 22, 2025 at 12:00 PM

Questions and Responses:

From Michael Macedo, Mechanical Engineer, Stantec

I raised the time constraint to Matt Campbell, Vertiv Rep. He will also be responding to email.

1. FACTORY CONTROLLERS: ONE FOR EACH AC UNIT. (provided by VERTIV)
 - A. REMOTE MOUNTED PUMP CONTROL AND PANEL
 - B. DAMPER CONTROL AND PANEL
 - C. INTEGRAL UNIT CONTROLLER

2. FACTORY PROVIDED SENSORS: ONE FOR EACH AC UNIT. (provided by VERTIV)
 - A. SMOKE SENSOR.
 - B. SUPPLY PLENUM TEMPERATURE SENSOR
 - C. RETURN PLENUM AIR SENSOR

3. ~~AIR-CONDITIONING UNIT SEQUENCE OF OPERATIONS~~ DDC POINTS
 - A. DDC:
 - 1) SERVER ROOM TEMPERATURE SENSOR: MONITOR AND RECORD TREND DATA. (see M-300 for location of sensor)

 - B. ALARMS:
 - 1) HIGH TEMPERATURE ALARM: IF TEMPERATURE RISES ABOVE 80 DEG F (ADJUSTABLE).

 - 2) COMMON ALARM: MONITOR COMMON ALARM SIGNAL. (this is a single point)

4. FACTORY CONTROL SEQUENCE OF OPERATIONS.

- A. LEAD / LAG: PRIMARY AIR CONDITIONING UNIT, PUMPS, RETURN DAMPER AND DRY COOLER SHALL RUN THROUGH FACTORY STARTUP SEQUENCE. UPON DETECTION OF COMMON ALARM, PRIMARY SYSTEM SHALL SHUT DOWN, SECONDARY SYSTEM SHALL BE ENABLED. BOTH UNITS SHALL DISABLE ON ACTIVATION OF SMOKE ALARM.
- B. PRIMARY AIR CONDITIONING UNIT SHALL CYCLE TO MAINTAIN ROOM SETPOINT OF 75 DEG F (ADJUSTABLE).
- C. COMMON ALARM POINTS: ANY OF THE FOLLOWING ALARM POINTS SHALL SIGNAL COMMON ALARM TO DDC.
 - 1) DAMPER FAILURE ALARM (damper actuator needs an end switch)
 - 2) PUMP FAILURE ALARM
 - 3) WATER LEAK DETECTOR ALARM
 - 4) FILTER CLOG ALARM
 - 5) COMPRESSOR HIGH PRESSURE ALARM
 - 6) LOSS OF AIRFLOW ALARM
 - 7) HIGH TEMPERATURE RETURN AIR ALARM (84 DEG F, ADJUSTABLE)
 - 8) LOW TEMPERATURE SUPPLY AIR ALARM (51 DEG F, ADJUSTABLE)
- D. FIRE ALARM PANEL POINTS: (Fire Life Safety issue)
 - 1) SMOKE ALARM

From Matt Campbell, Account Executive, Liebert Products

Here is the sequence as I understand it (I made some adjustments/clarification to Stantec's original sequence):

1. Factory controllers (one for each CRAC system):
 - a. Integral Liebert ICOM unit controls, factory installed in the CRAC unit. (Back Draft Damper control is part of the CRAC unit)
 - b. Remote mounted pump control panel.
2. Included Liebert sensors:
 - a. Return air smoke sensor
 - b. Supply air sensor (factory installed, coiled up in the unit, for contractor to extend into supply plenum/duct)
 - c. Return air sensor (factory installed in the CRAC unit)
3. CRAC unit monitoring:
 - a. DDC to provide an independent DDC temperature sensor to be installed in the conditioned space, to be monitored by DDC for alarm and trending purposes.
 - b. DDC to monitor common alarm output from each CRAC unit. (N/O, dry contact, that closes on alarm)
4. Factory Control Sequence of operations:
 - a. Lead/Lag operation provided by onboard Liebert ICOM controls. One unit/system (system consists of (1) CRAC unit, (1) Pump control panel, (1) 3HP dual pump package, and (1) Drycooler/fluid cooler) will operate as primary, while the secondary will remain as a backup. Upon alarm on the primary unit, back up unit shall start and primary unit

shall shut down. Internal smoke sensors shall shut down corresponding CRAC unit upon smoke detection.

- i. Unit will auto rotate on a schedule to equalize run time on equipment
- b. Primary unit shall operate fans 24/7, and modulate compressors/cooling as needed to maintain either a Return air setpoint or a supply air setpoint. (if you want to control to a room temperature, a Liebert remote sensor with cable, will be required for each unit. Currently not included in equipment quotes, but can be added)
- c. Common Alarm Points: Any of the following alarm points shall signal the common alarm contact (monitored by the DDC)
 1. Pump Failure alarm
 2. Leak detected alarm
 3. Filter clog alarm
 4. Compressor high head pressure alarm
 5. Loss of airflow alarm
 6. High Return Air Temperature Alarm (adjustable)
 7. Low Return Air Temperature Alarm (adjustable)
 8. Note, a damper failure alarm is not available, however, a damper that fails to open or fails and springs closed, should cause a loss of airflow alarm, which is in the list above.
- d. Fire Alarm Panel Points
 1. Smoke sensor monitoring points. (Common/NC/NO)

Here is a list of the minimum control wiring that will need to be provided by the contractor for the system to operate (does not include monitoring wiring for DDC room sensor wiring):

- 4 conductor control wiring (24vac) between the CRAC unit low voltage compartment and the Remote pump control panel. (recommend 16AWG up to 75', over 75' wire should be up sized to prevent voltage drop)
- 4 conductor control wiring (24vac) between the CRAC unit low voltage compartment and the leak detector.
- 2 conductor control wiring (24vac) between the Remote pump control panel and the factory provide and field installed flow switch in the common supply line off the circ pumps.
- 2 conductor control wiring (24vac) between the Remote pump control panel and the outdoor fluid cooler. (recommend 16AWG up to 75', over 75' wire should be up sized to prevent voltage drop.
- Smoke sensor status/monitoring control wire between CRAC unit low voltage compartment and fire alarm panel. (most commonly 2 conductor, up to the fire contractor though)
- 2 conductor wiring between CRAC unit low voltage compartment and DDC for common alarm monitoring.
- 1 CAT5 or similar ethernet cable run between the low voltage compartment in CRAC 1 and the low voltage compartment in CRAC 2. (cable should have ends installed and be field tested to make sure it is a good cable)

Here is a list of the line voltage wire connections that will be required:

- 3 Phase power from power panel to CRAC unit

- 3 Phase power from power panel to outdoor Drycooler.
- 3 Phase power from power panel to Remote pump control panel.
- 3 Phase power from remote pump control panel to pumps.

From Matt Campbell, Account Executive, Liebert Products

Please clarify the following:

1. **Controller Compatibility:**
 - What controller will be included with the unit? **Each CRAC unit included a factory HMI / onboard ICOM controller to control operation of the units. A remote pump control panel (to be field installed) is also included.**
 - Is it capable of supporting the specified sequence of operations with the factory controller? **The equipment as provided is capable of providing the sequence I mentioned above (with the installation of some field control wiring)**
2. **Required Equipment:**
 - What additional equipment or accessories (e.g., sensors, actuators, communication modules) are needed to fully comply with the sequence of operations? **Dampers and actuators are field provided (damper motor must be 24 VAC, spring/fail closed, with an end switch) DDC room sensor is field provided. Leak sensor is factory provided, but field installed.**
3. **Manufacturer-Supplied Components:**
 - Can the manufacturer supply the required controller and equipment as part of the unit package? **Yes, mostly, but see note above for field provided items.**
 - If not, please specify what must be field-supplied or integrated by others. **See note above for field provided items.**
4. **Details:**
 - Provide documentation or cut sheets for the recommended controller and components. **See attached cut sheet.**

Question from Glen Parks, Estimator, SD Construction

1. Please clarify the painting of trusses and pan deck as in do you want the conduit and existing ductwork, wiring all excluded? Do you want the perimeter walls painted to the bottom of the trusses? It will be substantially more money to mask off all the ducting left after demo, and all the conduit and conduit mounts at the trusses.

Response: Perimeter walls should be painted to the deck above. Existing ductwork and conduit can be painted with roof deck. Mask any labels (ie: circuit numbers on junction box covers). Large cable bundles should be wrapped/masked.

END OF ADDENDUM #7