ADDENDUM NO. 1  
September 27, 2022

PART 1 - GENERAL

1.1 PROJECT – H17-9622-ML

A. CCU – PRINCE BUILDING RENOVATION

1.2 ENGINEER

A. DWG Consulting Engineers, Inc.
1009 Anna Knapp Blvd, Mt. Pleasant, SC 29464
(843) 849-1141

1.3 RELATED DOCUMENTS

A. This Addendum consists of 12 pages.
B. To Prime Bidders of Record:
   1. This addendum forms a part of the Contract Documents and modifies the original Project Manual and Drawings. Acknowledge receipt of this addendum on the Bid Form. Failure to do so may cause a bid to be rejected as unresponsive as outlined in the Instructions to Bidders.

PART 2 - ADDENDUM ITEMS

2.1 GENERAL

A. The following changes/clarifications shall be made to the Project Manual:
   1. Sheet M051: Keynote #1 has been added to point out approximate locations of mechanical mezzanine access doors to access existing AH-1 & AH-2.
   2. Sheet M052: Keynote #1 has been expanded to include additional information regarding demolition of existing AH-1 & AH-2.

B. Questions:
   1. Q: What will the client or others be doing to fully complete the construction and commissioning, if not referenced in the RFP documents?
      A: As indicated in the documents, CMI will be hired directly by the owner. All other work is included in the bid documents.
   2. Q: Also, completion of engineering to permit stage as those provided are not stamped or marked as permit grade. If these continued engineering services are to be included in our bid, then we need a proposal and schedule from DWG engineers, please.
      A: This comment is not clear. The advertised bid documents are stamped / sealed and have already gone through OSE review. Please advise if further direction is required on this.
   3. Q: Is all equipment to be included in our bid and if not, then what specifically is to be excluded? Or explained in the RFP?
      A: All equipment scheduled in the drawings, and all materials noted in specs required to complete the work shown in the drawings shall be provided by the contractor.
   4. Q: How many respondents do you expect? We attended the walk though, on 9/8/22.
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A: This is a public bid with bid documents that are publicly posted for anyone to download. We have no way of knowing how many bids we will be receiving.

END OF ADDENDUM NO. 1
GENERAL NOTES

1. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY CEILING TILES AND/OR GRID DAMAGED DURING DEMOLITION / RENOVATION WORK.

KEYNOTES

ACCESS Door TO MECHANICAL MEZZANINE IS LOCATED IN THIS APPROXIMATE LOCATION ABOVE CEILING.

FIRST FLOOR MECHANICAL DUCTWORK DEMOLITION PLAN
M052

1. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY CEILING TILES AND/OR GRID DAMAGED DURING DEMOLITION / RENOVATION WORK.

DEMOLISH AIR HANDLING UNIT AND ALL DUCTWORK IN ATTIC / MEZZANINE. CAP, SEAL AND INSULATE EXISTING OUTSIDE AIR LOUVERS WITH CLOSED CELL ATTIC FOAM AND OTHER AIR LOUVERS AS LOCATED ONLY IN WALLS.. RENOVATION WORK IN MEZZANINE CAN ONLY BE PERFORMED BY MECHANICAL CONTRACTOR. REMOVE EXISTING INSULATION AND CEILING TILE. PRIORITY CHANGES: CONTRACTOR IS RESPONSIBLE FOR REPLACING MEZZANINE FLOOR, INSULATION, CEILING GRID, AND CEILING TILES DAMAGED DURING DEMOLITION / RENOVATION.
SECTION 230900 – INSTRUMENTATION AND CONTROL FOR HVAC

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. The work for the Building Automated Controls System will be performed by Siemens Building Technologies under direct contract with Coastal Carolina University. This specification is for information and coordination purposes only. The contractor shall coordinate and cooperate with the Building Automated Controls contractor to ensure that the Building Automated Controls contractor can accomplish the work required in this section in an appropriate and timely manner. The contractor shall be responsible for performing corrective actions required by the Building Automated Controls contractor. The local contact for Siemens Building Technologies for this project is Control Management, Inc. (Kent Walker 803-351-0873, 803-765-9070).

B. The Building Automation System (BAS) manufacturer shall furnish and install a fully integrated building automation system, incorporating direct digital control (DDC) for energy management, equipment monitoring and complete temperature control system as specified herein. The installation of the control system shall be performed under the direct supervision of the controls manufacturer with the shop drawings, flow diagrams, bill of materials, component designation or identification number and sequence of operation all bearing the name of the manufacturer. The installing manufacturer shall certify in writing, that the shop drawings have been prepared by the equipment manufacturer and that the equipment manufacturer has supervised their installation. In addition, the equipment manufacturer shall certify, in writing, that the shop drawings were prepared by their company and that all temperature control equipment was installed under their direct supervision.

C. All materials and equipment used shall be standard components, regularly manufactured for this and/or other systems and not custom designed specifically for this project. All systems and components shall have been thoroughly tested and proven in actual use for at least two years.

D. Building Automated Controls contractor shall be responsible for all BAS and Temperature Control wiring and conduit for a complete and operable system. All wiring shall be done in accordance with all local and national codes. Building Automated Controls contractor shall refer to Division 26 specifications for additional requirements.

E. Building Automated Controls contractor shall be responsible for providing all variable frequency drives unless noted otherwise on plans.

1.2 RELATED SECTIONS

A. Division 26 specifications.

1.3 WORK BY OTHERS

A. Mechanical contractor installs all wells, valves, taps, dampers, flow stations, etc. if furnished by BAS manufacturer.
B. Electrical Contractor provides:
   1. 120V power to all HVAC control panels and devices requiring power.
   2. Wiring of all power feeds through all disconnects and starters to electrical motors.
   3. Wiring of any remote start/stop switches and manual or automatic motor speed control devices not furnished by Controls Contractor.
   4. Installation and wiring of any electrical sub-metering devices furnished by Controls Contractor.

C. Products furnished but not installed under this section:
   1. Hydronic Piping:
      a. Control Valves
      b. Flow Switches
      c. Temperature Sensor Wells and Sockets
      d. Flow Meters
   2. Duct-work Accessories:
      a. Air-flow Stations

1.4 QUALITY ASSURANCE

A. The BAS system shall be designed and installed, commissioned and serviced by factory trained personnel. Manufacturer shall have an in-place support facility within 30 miles of the site with technical staff, spare parts inventory and necessary test and diagnostic equipment.

B. Materials and equipment shall be the catalogued products of manufacturers regularly engaged in production and installation of automatic temperature control systems and shall be manufacturer's latest standard design that complies with the specification requirements.

1.5 SUBMITTALS

A. Submit documentation submittals in the following phased delivery schedule:
   1. Valve and damper schedules
   2. Equipment data cut sheets
   3. System schematics, including:
      a. Sequence of operations.
      b. Point names.
      c. Point addresses.
      d. Interface wiring diagrams.
      e. Panel layouts.
      f. System riser diagrams.
   4. Auto-CAD compatible as-built drawings

B. Upon project completion, submit operation and maintenance manuals, consisting of the following:
   1. Index sheet, listing contents in alphabetical order.
   2. Manufacturer’s equipment parts list of all functional components of the system, Auto-CAD disk of system schematics, including wiring diagrams.
   3. Description of sequence of operations.
   4. As-Built interconnection wiring diagrams.
6. Trunk cable schematic showing remote electronic panel locations, and all trunk data.

1.6 WARRANTY

A. Provide all services, materials and equipment necessary for the successful operation of the entire BAS system for a period of one year after beneficial use.

B. The adjustment, required testing, and repair of the system includes all computer equipment, transmission equipment and all sensors and control devices.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Siemens - (extend existing Siemens campus network control systems)
   Contact: Control Management, Inc. Kent Walker 803-351-0873, 803-765-9070

2.2 NETWORKING COMMUNICATIONS

A. The design of the BAS shall network operator workstations and stand-alone DDC Controllers. The network architecture shall consist of two levels, a high-performance peer-to-peer building level network and DDC Controller floor level local area networks with access being totally transparent to the user when accessing data or developing control programs.

B. The design of BAS shall allow the co-existence of new DDC Controllers with all existing Siemens DDC Controllers in the same network without the use of gateways or protocol converters.

2.3 DDC CONTROLLER FLOOR LEVEL NETWORK

A. This level of communication shall support a family of application specific controllers and shall communicate with the peer-to-peer network through DDC Controllers for transmission of global data.

2.4 DDC CONTROLLER

A. DDC Controllers shall be a 16-bit stand-alone, multi-tasking, multi-user, real-time digital control processors consisting of modular hardware with plug-in enclosed processors, communication controllers, power supplies and input/output point modules. Controller size shall be sufficient to fully meet the requirements of this specification and the attached point I/O schedule. Each controller shall support a minimum of three (3) Floor Level LAN Device Networks.

B. Each DDC Controller shall have sufficient memory to support its own operating system and databases, including:
   1. Control processes.
   2. Energy management applications.
   3. Alarm management applications including custom alarm messages for each level alarm
for each point in the system.
4. Historical/trend data for points specified.
5. Maintenance support applications.
7. Operator I/O.
8. Dial-up communications.

C. Each DDC Controller shall support firmware upgrades without the need to replace hardware.

D. Provide all processors, power supplies and communication controllers so that the implementation of a point only requires the addition of the appropriate point input/output termination module and wiring.

E. DDC Controllers shall provide a minimum two RS-232C serial data communication ports for operation of operator I/O devices such as industry standard printers, operator terminals, modems and portable laptop operator's terminals. DDC Controllers shall allow temporary use of portable devices without interrupting the normal operation of permanently connected modems, printers or terminals.

F. Each DDC Controller shall continuously perform self-diagnostics, communication diagnosis and diagnosis of all panel components. The DDC Controller shall provide both local and remote annunciation of any detected component failures, low battery conditions or repeated failure to establish communication.

G. In the event of the loss of normal power, there shall be an orderly shutdown of all DDC Controllers to prevent the loss of database or operating system software. Non-volatile memory shall be incorporated for all critical controller configuration data and battery backup shall be provided to support the real-time clock and all volatile memory for a minimum of 72 hours.
   1. Upon restoration of normal power, the DDC Controller shall automatically resume full operation without manual intervention.
   2. Should DDC Controller memory be lost for any reason, the user shall have the capability of reloading the DDC Controller via the local RS-232C port, via telephone line dial-in or from a network workstation PC.

2.5 FLOOR LEVEL NETWORK APPLICATION SPECIFIC CONTROLLERS (ASC)

A. Each DDC Controller shall be able to extend its performance and capacity through the use of remote application specific controllers (ASCs) through Floor Level LAN Device Networks.

B. Each ASC shall operate as a stand-alone controller capable of performing its specified control responsibilities independently of other controllers in the network. Each ASC shall be a microprocessor-based, multi-tasking, real-time digital control processor. Provide the following types of ASCs as a minimum:
   1. Mechanical Equipment Controllers.
   2. Terminal Equipment Controllers.

C. Each ASC shall be capable of control of the terminal device independent of the manufacturer
of the terminal device.

D. Mechanical Equipment Controllers:
   1. Provide for control of HVAC systems and equipment including, but not limited to, the
      following:
         a. Air handling unit systems.
         b. Chilled water and hot water systems
   2. Controllers shall include all point inputs and outputs necessary to perform the specified
      control sequences.
   3. Each controller shall support its own real-time operating system. Provide a time clock with
      battery backup to allow for stand-alone operation in the event communication with its DDC
      Controller is lost and to insure protection during power outages.
   4. All programs shall be field-customized to meet the user's exact control strategy
      requirements. HVAC System controllers utilizing pre-packaged or canned programs shall
      not be acceptable.
   5. Programming of central system controllers shall utilize the same language and code as
      used by DDC Controllers to maximize system flexibility and ease of use.
   6. Each controller shall have connection provisions for a portable operator's terminal. This
      tool shall allow the user to display, generate or modify all point databases and operating
      programs.

2.6 PERSONAL COMPUTER OPERATOR WORKSTATION HARDWARE (EXISTING)

A. All new system software, graphics, point database information, and programming shall be
   added to the existing Personal computer operator workstation.

2.7 WORKSTATION OPERATOR INTERFACE (EXISTING)

A. Basic Interface Description
   1. Operator workstation interface software shall minimize operator training through the use of
      English language prompting, 30 character English language point identification, on-line
      help, and industry standard PC application software. The software shall provide, as a
      minimum, the following functionality:
         a. Real-time graphical viewing and control of environment.
         b. Scheduling and override of building operations.
         c. Collection and analysis of historical data.
         d. Point database editing, storage and downloading of controller databases.
         e. Alarm reporting, routing, messaging, and acknowledgment.

B. Dynamic Color Graphic Displays
   1. Color graphic floor plan displays and system schematics for each piece of mechanical
      equipment shall be installed under this contract. Graphics to be created include:
         a. Building floor plan with area temperatures displayed.
         b. Each air handling unit.
         c. Chilled Water System
         d. Hot Water System

2.8 FIELD DEVICES
A. All devices and equipment shall be approved for installation by the Mechanical Consulting Engineer.

B. Temperature Sensors - with accuracy of + .5 deg F @ 77 deg F).
   1. Digital room sensors shall have LCD display, day / night override button, and setpoint slide adjustment override options. The setpoint slide adjustment can be software limited by the automation system to limit the amount of room adjustment.

C. Humidity Sensors - with accuracy of + 2% RH @ 77 deg F including hysteresis, linearity, and repeatability.

D. Pressure Sensors - Setra.

E. Dampers, sized for specific application (supplied by Mechanical Contractor).

F. Damper Operators, sized for specific application.

G. Automatic Control Valves, sized for specific application.

H. Air Volume Measurement. (Duct Airflow Stations or Fan Inlet Probe as required)

I. Low Temperature Detection Stat.

J. Electric Thermostats.

K. Differential Pressure Switch.

2.9 DAMPER OPERATORS:

A. All damper operators shall be electric and shall be two-position or proportional as indicated. They shall be furnished in sufficient numbers and with sufficient power to insure satisfactory operation of the damper to provide tight close off. They shall be spring return type to return the damper to the normal positions indicated. Mark full open and full closed positions of all dampers. Marks shall be made with Bakelite nameplates, attached to ductwork.

2.10 VALVES:

A. All control valves shall have equal percentage modulating plugs to insure modulation of flow under varying loads. Valves shall be provided with proportioning operators of sufficient power to insure modulation and tight shut off. Valves shall be spring returned to either open or closed position in the event of failure as indicated in the description of operation. Valves 2” and smaller have brass bodies and screwed ends, 2-1/2” and larger shall have iron bodies and flanged ends.

PART 3 - EXECUTION

3.1 PROJECT MANAGEMENT
A. Provide a designated project manager who will be responsible for the following:
1. Construct and maintain project schedule.
2. On-site coordination with all applicable trades and subcontractors.
3. Authorized to accept and execute orders or instructions from owner/architect.
4. Attend project meetings as necessary to avoid conflicts and delays.
5. Make necessary field decisions relating to this scope of work.
6. Coordination/Single point of contact.

B. The contractor shall collaborate with the owner directly to determine the owner's preference for naming conventions, etc. before entering the data into the system.

3.2 START-UP AND COMMISSIONING

A. When installation of the system is complete, calibrate equipment and verify transmission media operation before the system is placed on-line. All testing, calibrating, adjusting and final field tests shall be completed by the manufacturer. Verify that all systems are operable from local controls in the specified failure mode upon panel failure or loss of power.

B. Provide any recommendation for system modification in writing to owner. Do not make any system modification, including operating parameters and control settings, without prior approval of owner.

3.3 MISCELLANEOUS

A. Refer to drawings for other control points which are to be included, but are not covered in this specification

3.4 TRAINING

A. The manufacturer shall provide factory trained instructor to give full instruction to designated personnel in the operation of the system installed. Instructors shall be thoroughly familiar with all aspects of the subject matter they are to teach. The manufacturer shall provide all students with a student binder containing product specific training modules for the system installed. All training shall be held during normal working hours of 8:00 am to 4:30 PM weekdays.

B. Provide 8 hours of training for Owner's designated operating personnel. Training shall include:
   1. Explanation of drawings, operations and maintenance manuals.
   2. Walk-through of the job to locate control components.
   3. Operator workstation and peripherals.
   4. DDC controller and ASC operation/function.
   5. Operator control functions including graphic generation and field panel programming.
   6. Explanation of adjustment, calibration and replacement procedures.

C. Since the Owner may require personnel to have more comprehensive understanding of the hardware and software, additional training must be available from the Manufacturer. If such training is required by the Owner, it will be contracted at a later date.
3.5 SEQUENCES OF OPERATIONS AND POINTS LIST

A. SEE DRAWINGS FOR ADDITIONAL SEQUENCES OF OPERATION AND POINTS LIST.

END OF SECTION 230900