Addendum Number 1

Project: North Campus, Building N102, HVAC Upgrades
Rowan Cabarrus Community College
Salisbury, North Carolina

Date: September 9, 2021

Owner: Rowan Cabarrus Community College

Designer: CMTA, Inc.

NOTICE TO BIDDERS

This addendum is issued prior to receipt of bids, proposals, and its contents do hereby become a part of the pricing documents for the above referenced project.

All trade contractor bidders are responsible for assuring that their subcontractors and vendors are properly apprised of the contents of this Addendum.

All information contained in this Addendum supersedes and takes precedence over any conflicting information in the original pricing documents.

All bidders must acknowledge receipt of this Addendum in the space provided on the Bid Form for their bid package.

GENERAL INFORMATION

The bid date is September 16, 2021.

CHANGES TO THE SPECIFICATIONS

1) Section 23 06 57 – Fan Array Air Handling Units
    a. This section has been revised and is being reissued as part of this addendum. (ATTACHED)

2) Section 23 09 00 – Automatic Temperature Controls and Instrumentation:
    a. Paragraph 1.15, add new manufacturer to list of acceptable manufacturers: "Engineered Control Solutions (Honeywell or Distech)"

CHANGES TO THE DRAWINGS

1) Electrical sheet E102 has been revised and reissued as part of this addendum. (ATTACHED)

    General Revisions:

    1) Ceilings in classrooms and corridor as indicated on electrical drawings shall be removed and replaced in classrooms as needed to complete the work.
    2) All corridor ceilings shall be replaced new and raised 10" to align with adjacent corridors.
    3) New ceilings shall be provided with 24"x24" tegular type drop face tile and 15/16"grid. Time to be Armstrong Optima Model with Prelude 15/16" grid or similar by Ultima or Cortega.

4) All devices to be hung from deck temporarily, including speakers, fire alarm devices and lights. RCCC IT department will remove projectors upon request.
5) All moving services in building will be by College as needed to allow access.
6) The existing JACE panel is in boiler room located plan south on lower level near parking lot.

ATTACHMENTS

1. Pre-Bid Agenda
2. Pre-Bid Meeting Sign In Sheet
3. Section 23 06 57
4. Sheet E102

ZOOM Meeting Link

Join Zoom Meeting
https://rccc-edu.zoom.us/j/99245641554

Meeting ID: 992 4564 1554
One tap mobile
+13017158592,,99245641554# US (Washington DC)
+13126266799,,99245641554# US (Chicago)

Dial by your location
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 669 900 9128 US (San Jose)
Meeting ID: 992 4564 1554
Find your local number: https://rccc-edu.zoom.us/u/ang9NL4vh

Join by SIP
99245641554@zoomcrc.com

Join by H.323
162.255.37.11 (US West)
162.255.36.11 (US East)
69.174.57.160 (Canada Toronto)
65.39.152.160 (Canada Vancouver)
Meeting ID: 992 4564 1554

CMTA
8801 J.M. Keynes Drive Suite 240
Charlotte, NC 28262

Pre-Bid Meeting Agenda
September 9, 2021
RCCC North Campus – N102 HVAC Renovation
CMTA Project No. 221.046

Date: September 9, 2021

1. Opening Comments

2. Introduction of Team Members

   James Currie – CMTA – Principal – jcurrie@cmta.com
   Anthony Cortina – CMTA – Design Engineer – acortina@cmta.com
   Dennis Davidson - Rowan Cabarrus Community College

3. Scope of Work

   HVAC AHU replacement for building. Consists of removing two air handling units and replacing with central AHU. Scope also includes ceiling removal and replacement of supply duct, removal of return duct and installation of new VAV units with some length of hot water piping.

4. Bidding Phase Schedule

   - Prebid: September 8, 2021
   - Bid Date: September 16, 2021
   - Contractor Walkthroughs Onsite:
     - Opportunity #1: 09/08/2021 10:00 AM
     - Opportunity #2: 09/09/2021 10:00 AM
   - **Questions from contractor due September 9, by 5:00pm.**
   - **Final Addendum date September 10, by end of day.**

5. General

   - Inspections
   - Construction Administration
   - Addenda
   - Delivery method
   - Construction schedule
   - Construction work days / hours
   - Contractor laydown / parking / use of facilities
   - Crane / equipment staging
   - Safety Requirements – Non-Smoking Policy
   - Required bid submittals / forms

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6. Tour / Questions

From 013200 – Proposed Construction Schedule

A. Each contractor's bid pricing is to be based on meeting the Project Milestone Dates below.

DESCRIPTION	DATE(S)
1. "Intent to Award" letter issued in order to facilitate AHU shop drawing submittals to expedite review.	10 days post bid.
2. Anticipated Notice to Proceed.	September 28, 2021
3. Drafting classes vacated December 17th -January 7th.	-
4. Demolition of old AHU	1 week prior to AHU Delivery to Site
5. AHU Delivery (Based 12 weeks post NTP)	December 21, 2021
6. AHU Installation and Startup	2 weeks following delivery of AHU to Site
8. Substantial completion.	3 weeks following delivery of AHU to site.
9. Goal of the project is to have TCO by January 7th, however the Owner recognizes the delay in the market and request open communication with the low bidder to create a workable schedule.	

EVENT: Bldg N12 HVAC Upgrade **DATE: 9/2/2021**

Name	Firm	Phone #	Email Address
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Lewi Page	TEAM Mechanical	704-962-1660	LPage@TEAM-Mech.com
Ron Warren	Heartland Cont	704-882-3004	rWarren@heartlandNC.com
Ron Prill	Envirotrol - EAS	704 816 9769	ron.prill@etrol.net
Jim Jarvis, Jr	AME	704 622 0997	Jimmie.Jarvis@AMEONline.com
Dennis Armstrong	A.M.S.I	704 490 5710	
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Marty Campbell	Prime Energy	704-309-4638	marty@primeenergyNC.com
Jacob Unell	United Automation	704-301-5931	junell@uaccontrols.com
Chris Hayes.	Cam-Ful Industries	704-556-0301	chayes@cam-ful.com
Brett Canady	Republic Electric	713-837-8114	brett@Republicelect.com
Brian Mathews	MMI	951-284-5542	brian@mmiHVACNC.com
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ANDY Fields	SMS	336-274-3008	andy@superiormechserv.com

SECTION 23 06 57 – FAN ARRAY AIR HANDLING UNITS

PART 1 - GENERAL

1.1 SCOPE

A. The project will require the procurement of factory air handling unit described below and delivery to site. Due to site constraints, the contractor shall breakdown the AHU and reconstruct per factory requirements in place. All UL listings and factory warranties must remain as well as a final pressure test of the AHU for air tightness prior to turnover.

B. The MULTIPLE FAN ARRAY shall consist of multiple, direct-driven, arrangement plenum fans constructed per AMCA requirements for the duty specified, (Class I, II, or III). All fans shall be selected to deliver design air flow at the specified operating TSP at the specified motor speed and as scheduled. The MULTIPLE FAN array shall be selected to operate at a system Total Static Pressure that does not exceed 90% of the specified fan's peak static pressure producing capability at the specified fan speed and N+1 redundancy.

C. Each fan/motor "cell" shall consist of an 11 gauge A60 Galvanized steel intake wall, 14 gauge spun steel inlet funnel, and an 11 gauge A60 Galvanized steel motor support plate and structure. The fan cartridge intake wall, inlet funnel, and motor support structure shall be powder coated for superior corrosion resistance.

D. All motors shall be IEEE inverter duty, NEMA defined, premium efficiency TEFC, T-frame motors selected at the specified operating voltage, RPM, and efficiency as specified or scheduled elsewhere. Each motor shall be provided with a shaft grounding brush to prevent Electrical Discharge Machining (EDM) damage to the motor bearings.

E. Each fan/motor assembly shall be dynamically balanced to meet AMCA standard 204-96, category BV-5, Grade 1.0 with peak to peak deflection equal to or less than 0.5 mil at the design operating speed for the fan/motor cartridge.

F. Provide Neoprene Motor Base Isolators for each fan module.

G. This work consists of providing all labor, materials, equipment, and services necessary for the installation of air handling equipment for the heating, cooling, and ventilation systems as indicated on the drawings, required, and as specified.

H. Fans shall be isolated on 2"spring lsolators and inertia sled.

PART 2 - PRODUCTS

2.1 AIR HANDLING UNITS:

A. Provide factory made unit consisting of components as specified hereinafter and indicated on drawings.

B. Fan shall be selected at or near peak efficiency and shall be statically and dynamically balanced and tested.

C. Fan shaft shall not pass thru its first critical speed as it comes up to rated RPM.

D. No water carry-over from cooling coils into air stream accepted.

2.2 UNIT CASING:

A. Unit shall be constructed of a complete frame with removable panels. Removal of side panels must not affect the structural integrity of each module. The casing must be able to withstand up to six-inches positive or four-inches negative static pressure. All exterior wall panels shall be made of minimum 18-gauge G90 galvanized steel. Closed-cell foam gasketing shall be where modules are joined.

B. Units shall have a sloped, insulated 304-stainless steel drain under cooling coil sections for positive drainage of condensate. Drain connections are to be provided on one side of the unit. The pans shall be easily accessible.

C. Full sized hinged removable double-wall access doors with two step safety handles shall be provided for quick access to the interior of the unit casing. Doors attached by screws or doors not continuously gasketed are not acceptable. Fan module doors shall have 12” x 12” clear glass view windows.

D. Unit shall be double-wall constructed. Each wall shall be of 18-gauge solid plate galvanized steel in all modules. Foil faced insulation is not acceptable. Provide additional interior perforated wall with acoustical batt insulation on all fan and discharge plenum sections.

E. All panels shall be sealed with closed-cell foam gasketing. Double-wall units shall be factory insulated with 1 ½ pound density insulation. All connecting channels shall be insulated to prevent sweating.

F. Unit casing and all accessories shall be chemically cleaned, phosphatized and coated with a baked enamel finish. An additional coat of air dried enamel shall be applied on all exterior surfaces after final assembly and before shipment.

G. Condensation pan shall be one piece, arc welded, stainless steel with drain connections on both sides. Pan shall extend under complete fan and coil sections for horizontal units and coil section for vertical units. Drain pans shall be completely insulated with seamless ½” cellular, sprayed foam in place insulation or equivalent.

2.3 FILTERS:

A. Refer to schedules. Provide MERV 13 2” Angle or 4” Flat Final and MERV 8 Prefilter.

B. Provide units with UV-C post coil per separate specification.

2.4 OUTSIDE AIR/RETURN AIR/EXHAUST AIR DAMPERS (As Applicable)

A. Dampers shall be provided to modulate the volume of outside and return air. Dampers shall be of airfoil design and shall be opposed blade type with metal compressible jamb seals and extruded vinyl blade edge seals on all blades.

B. Blades shall rotate on stainless steel sleeve bearings. Maximum damper blade length shall be 60-inches. Leakage rate shall not exceed five cfm/square foot at one-inch wg and nine cfm/square foot at four-inches wg.

2.5 MOTORS:

A. Motors shall be mounted integral to an isolated fan assembly furnished by the unit manufacturer. Motors shall be mounted inside the unit casing.

B. Motors shall be of scheduled voltage/"T" frame.

2.6 DRIVES:

A. Motors inside air stream shall be rated for extreme conditions that exist inside air handler. Motors shall be inverter duty. Motor control shall be as specified elsewhere.

B. Fans shall be direct driven.

C. Casings shall be double.

D. Drives shall be selected at 1.2 service factor.

E. All motors shall be provided with shaft grounding.

2.7 PREHEAT COIL SECTION:

A. Furnish Hot Water Pre-Heating Coils, capable of heating capacities scheduled

2.8 COILS:

A. No water carry-over from cooling coils into air stream shall be accepted. Eliminators are not permitted.

B. Coils shall be manufactured by the same company as the supplier of the air handling unit. Coils shall be designed with aluminum plate fins and copper tubes. Coils over 48” shall be split to allow removal of individual sections.

C. Fins shall have collars drawn, belled and firmly bonded to the tubes by means of mechanical expansion of the tubes. No soldering or tinning shall be used in the bonding process. Coils shall be mounted in the unit casing to be accessible for service and can be removed from the unit either through the side or top. Capacities, pressure drops and selection procedure shall be certified in accordance with ARI Standard 410.

D. All coils shall be enclosed in a coil section. Coil headers and U-bends shall not be exposed.

E. Water flow shall be counter to airflow. Coils shall be proof tested to 300 psig and leak teased to 200 psig air pressure underwater.

F. Headers shall be either round copper or cast iron. Steel pipe headers are not acceptable.

G. Tubes shall be 5/8-inch O.D., 0.20-inch thick think copper Chilled Water and ½", 0.20"-inch for Hot.

H. Units shall be as manufactured by CES, Trane, JCI, Carrier or McQuay.

I. Lights: Provide marine lights with external switches for the intake plenum**,** return air fan, mixing box, access section supply air fan compartments, and discharge plenum.

2.9 SOUND DATA

A. The MULTIPLE FAN ARRAY system specified herein is an N+1 (80%) system design for 80% airflow upon failure of one fan or fan motor. The system must be able to perform 80% of design CFM and static pressure with one fan, fan motor and/or VFD in a failed or fault operation. The system shall be able to operate without interruption until the failed component is changed. The system must allow for a complete changeout of the failed component without interrupting the AHU's full service and operation.

B. The Discharge and Inlet bare fan sound power levels for each individual octave band shall NOT exceed the values specified or scheduled for the MULTIPLE FAN array.

C. The MULTIPLE FAN ARRAY shall be provided with a Coplanar Silencer package with Melamine sound absorption, acoustical media. The Coplanar Silencers shall NOT increase the fan total static pressure, nor shall they increase the airway tunnel length of the FANWALL Air Handling Unit when compared to the same MULTIPLE FAN ARRAY Air Handling Unit without the Coplanar Silencer array. The Coplanar Silencers (sound attenuators) will reduce the bare fan discharge sound power levels as noted below and/or in the plans. If NOT otherwise specified, the acoustical silencers shall reduce the bare fan discharge sound power levels by a minimum of 15 db, re 10^-12 watts with center frequencies of 125, 250, 500, 1000, 2000, 4000, and 8000 HZ when compared to the same Air Handling Unit without the silencers.

D. The MULTIPLE FAN ARRAY shall consist of multiple fan and motor "cells" (cubes), spaced in the air way tunnel cross section to provide a uniform air flow and velocity profile across the entire air way tunnel cross section and components contained therein. Each fan motor shall be individually wired to a control panel containing Variable Frequency Drive(s) (VFD) or starter(s), as specified elsewhere. Wire sizing shall be determined, and installed, in accordance with applicable NEC. All wiring in the airstream shall be in conduit.

E. The MULTIPLE FAN ARRAY shall produce a uniform air flow profile and velocity profile within the airway tunnel of the air handling unit not to exceed the specified cooling coil and/or filter bank face velocity when measured at a point 12" from the intake side of the MULTIPLE FAN ARRAY septum wall, and at a distance of 42" from the discharge side of the MULTIPLE FAN ARRAY septum wall.

F. Each fan/motor assembly shall be removable through a 36" wide, free area, access door located on the discharge side of the MULTIPLE FAN ARRAY. Each fan/motor "cell" will be provided with an individual back-draft damper. These back draft dampers shall be manufactured by the unit manufacturer. The back draft shall not add more than 12 inches in the direction of airflow to the fan section. The back- draft damper shall be designed and built to add zero system effect into the system. The BDD shall be rated at a leakage rate of no more than two cfm/sq. ft. at one-inch of static pressure. The static pressure drop of the system BDD must be included in the systems performance.

G. Each fan in the multiple fan array(s) shall be provided with means to prevent re-circulation of system airflow at the fan array when any one fan in an array is disabled. Back flow prevention devices and the system effects attributed to them must be included in the submitted fan performance data for fan brake horsepower and acoustics. In addition, AMCA certified bare fan performance data for the submitted fans shall be clearly indicated in the submittal data and that value shall be subtracted from the submitted fan arrangement performance data to indicate the system effects attributed to the means of back flow prevention for the multiple fan array.

H. Back draft damper data that is based on straight runs of ductwork upstream and downstream of the damper per AMCA testing procedures, and not per the submitted mounting arrangement in the AHU unit(s), will not be approved. At the sole discretion of the engineer, all methods and means of determining the system effects of the back draft dampers in the submitted mounting arrangement shall be provided to the engineer for approval. Submitted fan performance data that does not allow for back draft damper system effects will not be approved.

I. Single fan performance data extrapolated for multiple fan arrays will only be acceptable upon successful completion of factory witnessed performance testing at the specified system operating conditions for the multiple fan array incorporating the submitted single fan data. Fan Brake HP and/or bare fan PWL that exceed scheduled and specified levels will be corrected at no additional cost to the owner. Systems submitted with higher than scheduled or specified connected HP will not be approved.

J. Each fan assembly shall be supplied with a complete flow measuring system, which indicates airflow in Cubic Feet per Minute. The flow measuring system shall consist of a flow measuring station with static pressure taps and total pressure tubes located at the throat of the fan inlet cone. The flow measuring station shall not obstruct the inlet of the fan and shall have no effect on fan performance (flow or static) or sound power levels. A surface mounted indicator, located on the unit exterior, shall provide a (digital) (analog) CFM readout, and/or a (4-20 ma) (0-10 volt) output control signal for use in the BAS as specified elsewhere.

K. The manufacturer shall provide a complete spare MULTIPLE FAN ARRAY motor assembly for each type of fan/motor assembly provided on the project.

L. Manufacturers of alternate fan/motor assemblies, provided in lieu of the specified MULTIPLE FAN array , shall provide a spare motor and fan assembly for each type and size of fan/motor assembly, as well as a five year, parts and labor warranty for replacement at no additional expense to the owner. Such warranty coverage shall include the cost of any cranes or lifting devices, unit disassembly and reassembly, fan balancing, etc., as required.

2.10 FANWALL ELECTRICAL

A. Provide a complete electrical and control system required to run the MULTIPLE FAN array system including all equipment, material, electrical enclosure, electrical components and electrical labor.

B. MULTIPLE FAN ARRAY designs shall be in accordance with specific system requirements. Please see system requirements before electrical design of system is to commence.

C. MULTIPLE FAN ARRAY Electrical designs shall be in accordance with the NEC, UL 508A, and Local Codes.

2.11 MOTOR CIRCUIT PROTECTION

A. All motors in the MULTIPLE FAN ARRAY shall be provided with individual Motor Protection for thermal overload protection. All motor circuit protectors shall be located in main enclosure.

2.12 FAN ARRAY CONTROL

A. Fan Array with Variable Frequency Drive Control:

1. Provide a Variable Frequency Drive to start and run all each motors in the Fan Array. The Variable Frequency Drive shall be sized accordingly to start and hold each motor in the Fan Array. Provide short circuit protection of motor circuits through means of using fuses with fuse blocks or circuit breakers.

2. The Variable Frequency Drive shall be mounted in a dedicated enclosure for connection to single point power. Variable Frequency Drive enclosure shall be provided with a main disconnecting means. Provide appropriate cooling of enclosure for ambient temperatures of 85 deg F, non condensing.

3. Motor circuit protectors shall be used for each motor in the MULTIPLE FAN ARRAY. Motor circuit protectors shall be housed and mounted in the VFD enclosure as required. Motor circuit protectors may be mounted in a remote enclosure that is separate from VFD enclosure if design requires. Variable frequency drive enclosure and remote Motor circuit protector enclosure must be mounted at a minimal distance from fan array motors and each other.

4. Provide three phase power distribution wiring and control wiring as required. All three phase power components shall have a rating listed for Short Circuit Current Rating. Provide control wiring and components required for complete operation of fan wall system. System controls, controls components and control wiring shall include but is not limited to Auto mode or manual mode, CFM control mode, or BMS control mode. Controls and control wiring shall include auto start/stop, manual start stop, life safety shutdown, smoke shutdown, system alarms and VFD alarms. All control wiring shall be included in VFD enclosure provided with system.

2.13 FLOW MONITORING SYSTEM

A. As required by system design, each fan assembly shall be supplied with a complete flow measuring system, which indicates airflow in Cubic Feet per Minute. The flow measuring system shall consist of a flow measuring station with four static pressure taps and four total pressure tubes located at the throat of the fan inlet cone. The flow measuring station shall not obstruct the inlet of the fan and shall have no effect on fan performance (flow or static) or sound power levels. A surface mounted indicator, located on the unit exterior, shall provide readout, and/or a (4-20 ma) (0-10 volt) output control signal for use in the BAS as specified elsewhere.

2.14 INPUT LINE FILTERS

A. As required by electrical design, when using Variable Frequency Drives provide Input Line reactors with three percent impedance mounted externally if not already internal to variable frequency drive. Refer to Section 230920 for VFD requirements.

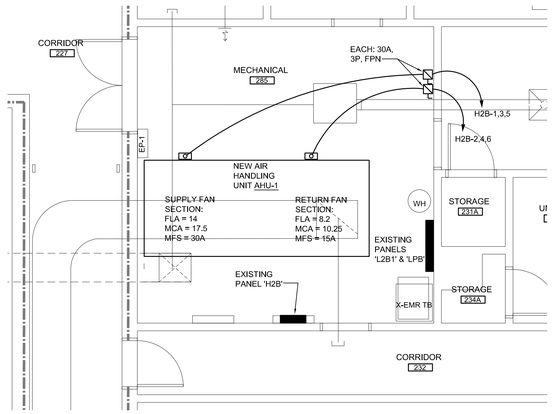
PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install all equipment and appurtenances in strict accordance with the approved shop drawings and manufacturer's recommendations.

B. Mechanical contractor will be responsible for power wiring of internal lights to switch on outside of unit, including extension to nearest 120V open circuit.

END OF SECTION 23 06 57



2 ENLARGED PLAN – MECHANICAL ROOM 285

SCALE: 1/4"=1'-0"

NORTH

1/4 " = 1'-0" 2' 0 2' 4' 8'

1 SECOND FLOOR PLAN – ELECTRICAL NEW WORK

SCALE: 1/8"=1'-0"

NORTH

1/8 " = 1'-0" 4' 0 4' 8' 16'

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Rowan-Cabarrus COMMUNITY COLLEGE

ROWAN CABARRUS COMMUNITY COLLEGE BUILDING N102 HVAC UPGRADES

North Campus
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NORTH CAROLINA PROFESSIONAL SEAL 038491 ENGINEER DANIEL A. BOLAND

08/06/2021

COMMISSION NUMBER: 221.046.00

DRAWN BY: JCT
CHECKED BY: DAB
DATE: 08/06/2021
REVISIONS:
1 09.09.21 REVISION 1

DRAWING TITLE:
SECOND FLOOR PLAN - ELECTRICAL

DRAWING NUMBER:

E102