



ADDENDUM #1
COOLING TOWER REPLACEMENT (FAMILY COURT)

RFP #2010-6708-1724

June 14, 2010

City of Newport News
Office of the Purchasing Director
2400 Washington Avenue
Newport News, VA 23607
Phone: (757) 926-8042/ Fax: (757) 926-8038
www.nngov.purchasing

Sealed proposals, subject to the conditions and instructions contained herein, will be received at the above office of the Purchasing Director, 4th Floor, City Hall, 2400 Washington Avenue, Newport News, Virginia, 23607, until the time and date shown below (local prevailing time), for furnishing the items or services described in the request for proposal.

It is agreed and understood this and any following pages will constitute addendum #1, and shall be made part of the original IFB document.

The "Bid Due" date remains the same.

Contract Officer:

Handwritten signature of Kimberly A. Kapalka in purple ink.

Kimberly A. Kapalka, C.P.M., Senior Buyer, kkapalka@nngov.com

Company Name: _____

Address: _____

City/State/Zip: _____

Telephone: _____ FAX No.: _____

E-mail: _____

Print Name: _____ Title: _____

Signature: _____ Date: _____

This Form Must Be Signed. Signature must be original, not photocopied)

Clarification – Mandatory Pre-Bid Site Visit:

All bidders are required to attend the scheduled mandatory pre-bid site visit and inspection at the Family Court (Juvenile and Domestic Relations District Court), 2501 Huntington Avenue, Newport News, VA 23607. The site visit is not an opportunity to ask questions on site. All questions and/or requests for clarification shall be submitted in writing to the designated purchasing agent not less than five (5) days prior to the bid due date.

Clarification – Award:

Award shall be made in accordance with Chapter 2, Article XX, Section 2-563, Newport News City Code. It will be made to the lowest responsive, responsible bidder. In determining the lowest responsive, responsible bidder, in addition to price, the City shall consider quality, delivery time, payment terms, options available and suitability of the services offered for the intended use, as well as the capacity, character, integrity, and reputation of the bidder, and any past experience with the service offered of the bidder.

After the determination of award as described above, the City reserves the right to consider value engineering proposals. Value Engineering will not be used to determine low bid.

Additions (attachments):

Evapco Equipment Layout Manual

Evapco Performance And Mechanical Specifications

Evapco Rigging And Assembly Instructions

Information regarding Variable Frequency Drive - Section 2.3 (below):

ADD SECTION 2.3:

2.3 VARIABLE FREQUENCY DRIVE:

- A. Selected Contractor to provide one (1) Variable Frequency Drive (VFD), 3 contactor with bypass to be controlled locally and/or through Honeywell EBI Building Automation System (BAS). Due to ARRA funding, VFD must comply with the Buy American provision. Refer to the attached Special Terms and Conditions for the Energy Efficiency and Conservation Block Grant Program and the following website for more information:
http://www1.eere.energy.gov/recovery/buy_american_provision.html
- B. Basis of Design: ABB unit: Model ACH 550, or equal.
- C. VFD shall meet the specifications listed below and it shall be rated for the cooling tower 5-HP inverter motors (two motors). Both cooling tower fan motors shall operate simultaneously through one VFD.

D. DESCRIPTION

This specification is to cover a complete Variable Frequency motor Drive (VFD) consisting of a pulse width modulated (PWM) inverter designed for use on a standard NEMA Design B induction motor.

E. QUALITY ASSURANCE

1) Referenced Standards:

- a) Institute of Electrical and Electronic Engineers (IEEE)
- b) Standard 519-1992, IEEE Guide for Harmonic Content and Control.
- c) Underwriters laboratories, UL508C
- d) National Electrical Manufacturer's Association (NEMA)
- e) ICS 7.0, AC Adjustable Speed Drives
- f) IEC 16800 Parts 1 and 2

F. QUALIFICATIONS:

VFDs and options shall be UL listed as a complete assembly. VFDs that require the customer to supply external fuses for the VFD to be UL listed are not acceptable. VFDs requiring additional branch circuit protection are not acceptable. The base VFD shall be UL listed for 100 KAIC without the need for input fusing.

G. SUBMITTALS:

Contractor shall provide product information for Owner review and approval prior to placing order or purchase of VFD. Submittals shall include the following information:

1. Any portions of the specifications not in compliance with must be clearly indicated or the supplier and contractor shall be liable to provide all components required to meet the specifications.

H. VARIABLE FREQUENCY DRIVE SPECIFICATIONS:

1. The VFD package as specified herein shall be enclosed in a UL Listed Type enclosure, (NEMA rated enclosures are not acceptable) completely assembled and tested by the manufacturer in an ISO9001 facility. The VFD tolerated voltage window shall allow the VFD to operate from a line of +30% nominal, and -35% nominal voltage as a minimum.
2. Environmental operating conditions: 0-40C continuous. Altitude 0 to 3300 feet above sea level, up to 95% humidity, non-condensing. All circuit boards shall have conformal coating.
3. Enclosure shall be rated UL type 1 and shall be UL listed as a plenum rated VFD.
4. The keypad shall include Hand-Off-Auto selections and manual speed control. There shall be fault reset and "Help" buttons on the keypad. The Help button shall include "on-line" assistance for programming and troubleshooting.
5. There shall be a built-in time clock in the VFD keypad. The clock shall have a battery back-up with 10 years minimum life span. The clock shall be used to date and time stamp faults and record operating parameters at the time of fault. If the battery fails, the VFD shall automatically

revert to hours of operation since initial power up. The clock shall also be programmable to control start/stop functions, constant speeds, PID parameter sets and output relays. The VFD shall have a digital input that allows an override to the time clock (when in the off mode) for a programmable time frame. There shall be four (4) separate, independent timer functions that have both weekday and weekend settings. Capacitor backup is not acceptable.

6. The VFD shall be capable of starting into a coasting load (forward or reverse) up to full speed and accelerate or decelerate to set-point without safety tripping or component damage (flying start).
7. The overload rating of the drive shall be 110% of its normal duty current rating for 1 minute every 10 minutes, 130% overload for 2 seconds. The minimum FLA rating shall meet or exceed the values in the NEC/UL table 430-150 for 4-pole motors.
8. The VFD shall have 5% impedance internal reactors to reduce the harmonics to the power line and to add protection from AC line transients. The 5% impedance may be from dual (positive and negative DC bus) reactors, or 5% AC line reactors. VFDs with only one DC reactor shall add AC line reactors.
9. The VFD shall include a coordinated AC transient protection system consisting of 4-120 joule rated MOV's (phase to phase and phase to ground), a capacitor clamp, and 5% impedance internal reactors.
10. The VFD shall provide a programmable proof of vibration switch form c relay output. The drive shall be programmable to signal this condition via a keypad warning, relay output and/or over the serial communications bus. Relay outputs shall include programmable time delays that will allow for drive acceleration from zero speed without signaling a false under-load condition.
11. VFD to have the following adjustments:
 - a) Three (3) programmable critical frequency lockout ranges to prevent the VFD from operating the load continuously at an unstable speed.
 - b) Two (2) PID Setpoint controllers shall be standard in the drive, allowing pressure or flow signals to be connected to the VFD, using the microprocessor in the VFD for the closed loop control. The VFD shall have 250 ma of 24 VDC auxiliary power and be capable of loop powering a transmitter supplied by others. There shall be two parameter sets for the first PID that allow the sets to be switched via a digital input, serial communications or from the keypad for night setback, summer/winter setpoints, etc. There shall be an independent, second PID loop that can utilize the second analog input and modulate one of the analog outputs to maintain setpoint of an independent process (ie. valves, dampers, etc.). All setpoints, process variables, etc. to be accessible from the serial communication network.
 - c) Two (2) programmable analog inputs shall accept current or voltage signals.
 - d) Two (2) programmable analog outputs (0-20ma or 4-20 ma). The outputs may be programmed to output proportional to Frequency, Motor Speed, Output Voltage, Output Current, Motor Torque, Motor Power (kW), DC Bus voltage, Active Reference, and other data.
 - e) Six (6) programmable digital inputs.

- f) Three (3) programmable digital Form-C relay outputs. The relays shall include programmable on and off delay times and adjustable hysteresis. The relays shall be rated for maximum switching current 8 amps at 24 VDC and 0.4 A at 250 VAC; Maximum voltage 300 VDC and 250 VAC; continuous current rating 2 amps RMS. Outputs shall be true form C type contacts; open collector outputs are not acceptable.
 - g) Run permissive circuit - There shall be a run permissive circuit for a vibration safety switch. Regardless of the source of a run command (keypad, time-clock control, or serial communications) the VFD shall provide a dry contact closure that will signal the vibration switch (VFD motor does not operate). When the vibration switch is closed, a normally open dry contact (end-switch) shall close. The closed end-switch is wired to a VFD digital input and allows motor operation.
 - h) Two independently adjustable accel and decel ramps with 1 – 1800 seconds adjustable time ramps.
 - i) The VFD shall include a motor flux optimization circuit that will automatically reduce applied motor voltage to the motor to optimize energy consumption and audible motor noise.
 - j) The VFD shall include a carrier frequency control circuit that reduces the carrier frequency based on actual VFD temperature that allows higher carrier frequency without derating the VFD or operating at high carrier frequency only at low speeds.
 - k) The VFD shall include password protection against parameter changes.
12. The Keypad shall include a backlit LCD display. The keypad shall be removable, capable of remote mounting and allow for uploading and downloading of parameter settings. The display shall be in complete English words for programming and fault diagnostics (LED and alpha-numeric codes are not acceptable). All VFD faults shall be displayed in English words.
13. All applicable operating values shall be capable of being displayed in engineering (user) units. A minimum of three operating values from the list below shall be capable of being displayed at all times. The display shall be in complete English words (alpha-numeric codes are not acceptable):
- Output Frequency
 - Motor Speed (RPM, %, or Engineering units)
 - Motor Current
 - Drive Temperature
 - DC Bus Voltage
 - Output Voltage
14. Serial Communications:
- a) The VFD shall have an RS-485 port as standard. The standard protocols shall be Modbus, BACnet, Johnson Controls N2 bus, and Siemens Building Technologies FLN. Each individual drive shall have the protocol in the base VFD. The use of third party gateways and multiplexers is not acceptable. All protocols shall be “certified” by the governing authority (i.e. BTL Listing for BACnet). Use of non-certified protocols is not allowed.

- b) The BACnet connection shall be an RS485, MSTP interface operating at 9.6, 19.2, 38.4, or 76.8 Kbps. The connection shall be tested by the BACnet Testing Labs (BTL) and be BTL Listed. The BACnet interface shall conform to the BACnet standard device type of an Applications Specific Controller (B-ASC). The interface shall support all BIBBs defined by the BACnet standard profile for a B-ASC including, but not limited to:

Data Sharing – Read Property – B.

Data Sharing – Write Property – B.

Device Management – Dynamic Device Binding (Who-Is; I-AM).

Device Management – Dynamic Object Binding (Who-Has; I-Have).

Device Management – Communication Control – B.

- c) Serial communication capabilities shall include, but not be limited to; run-stop control, speed set adjustment, proportional/integral/derivative PID control adjustments, current limit, accel/decel time adjustments, and lock and unlock the keypad. The drive shall have the capability of allowing the DDC to monitor feedback such as process variable feedback, output speed / frequency, current (in amps), % torque, power (kW), kilowatt hours (resettable), operating hours (resettable), and drive temperature. The DDC shall also be capable of monitoring the VFD relay output status, digital input status, and all analog input and analog output values. All diagnostic warning and fault information shall be transmitted over the serial communications bus. Remote VFD fault reset shall be possible.

15. VFD shall include EMI/RFI filters.

16. All VFDs through 60HP shall be protected from input and output power mis-wiring. The VFD shall sense this condition and display an alarm on the keypad. The VFD shall not be damaged by this condition.

17. OPTIONAL FEATURES – Optional features to be furnished and mounted by the drive manufacturer. All optional features shall be UL Listed by the drive manufacturer as a complete assembly and carry a UL508 label. The bypass enclosure door and VFD enclosure must be interlocked such that input power is turned off before either enclosure can be opened. The VFD and Bypass as a package shall have a UL listed short circuit rating of 100,000 amps and shall be indicated on the UL data label. The drive and bypass package shall be seismic certified and labeled to IBC 2000, 2003 and 2006.

18. A complete factory wired and tested bypass system consisting of an output contactor and bypass contactor, service (isolation) switch and VFD input fuses are required. Bypass designs, which have no VFD only fuses, or that incorporate fuses common to both the VFD and the bypass will not be accepted

19. Door interlocked padlockable circuit breaker that will disconnect all input power from the drive and all internally mounted options.

20. The following operators shall be provided:

- a) Bypass Hand-Off-Auto
- b) Drive mode selector and light
- c) Bypass mode selector and light
- d) Bypass fault reset

e) Bypass LDC display, 2 lines, for programming and status / fault / warning indications

21. Motor protection from single phase power conditions- The Bypass system must be able to detect a single phase input power condition while running in bypass, disengage the motor in a controlled fashion, and give a single phase input power indication. Bypass systems not incorporating single phase protection in Bypass mode are not acceptable.
21. The system (VFD and Bypass) tolerated voltage window shall allow the system to operate from a line of +30%, -35% nominal voltage as a minimum. The system shall incorporate circuitry that will allow the drive or bypass contactor to remain “sealed in” over this voltage tolerance at a minimum.
23. The Bypass system shall NOT depend on the VFD for bypass operation. The bypass shall be completely functional in both Hand and Automatic modes even if the VFD has been removed from the enclosure for repair / replacement.
24. Serial communications – the bypass and VFD shall be capable of being monitored and or controlled via serial communications. Provide communications protocols for ModBus; Johnson Controls N2; Siemens Building Technologies FLN (P1) and BACnet.
25. BACnet Serial communication bypass capabilities shall include, but not be limited to; bypass run-stop control; the ability to force the unit to bypass; and the ability to lock and unlock the keypad. The bypass shall have the capability of allowing the DDC to monitor feedback such as, bypass current (in amps), bypass kilowatt hours (resettable), bypass operating hours (resettable), and bypass logic board temperature. The DDC shall also be capable of monitoring the bypass relays output status, and all digital input status. All bypass diagnostic warning and fault information shall be transmitted over the serial communications bus. Remote bypass fault reset shall be possible. The following additional bypass status in communications bus – keypad “Hand” or “Auto” selected, and bypass selected. The DDC system shall also be able to monitor if the motor is running under load in both VFD and bypass in the VFD mode over serial communications or Form C relay output. A minimum of 40 field parameters shall be capable of being monitored in the bypass mode.
26. The bypass control shall monitor the status of the VFD and bypass contactors and indicate when there is a welded contactor contact or open contactor coil. This failed contactor operation shall be indicated on the Bypass LCD display as well as over the serial communications protocol.
27. The bypass control shall include a programmable time delay for bypass start and keypad indication that this time delay is in process. This will allow VAV boxes to be driven open before the motor operates at full speed in the bypass mode. The time delay shall be field programmable from 0 – 120 seconds.
28. The bypass control shall be programmable for manual or automatic transfer to bypass. The user shall be able to select via keypad programming which drive faults will generate an automatic transfer to bypass and which faults require a manual transfer to bypass.
29. There shall be an adjustable motor current sensing circuit for the bypass and VFD mode to provide proof of flow indication. The condition shall be indicated on the keypad display, transmitted over the building automation protocol and on a relay output contact closure.

30. The bypass controller shall have six programmable digital inputs, and five programmable form C relay outputs.
31. The relay outputs from the bypass shall be programmable for any of the following indications.
 - a) System started
 - b) System running
 - c) Bypass override enabled
 - d) Drive fault
 - e) Bypass fault
 - f) Bypass H-O-A position
 - g) Overload
 - h) Bypass selected
 - i) Bypass run
 - j) Bypass alarm
 - k) Over temperature
32. The digital inputs for the system shall accept 24VAC or 24VDC. The bypass shall incorporate internally sourced power supply and not require an external control power source. The bypass power board shall supply 250 ma of 24 VDC for use by others to power external devices.
33. Customer Interlock Terminal Strip – provide a separate terminal strip for connection of freeze, fire, smoke contacts, and external start command. All external safety interlocks shall remain fully functional whether the system is in VFD or Bypass mode. The remote start/stop contact shall operate in VFD and settings shall be transmitted over the serial bypass modes. The terminal strip shall allow for independent connection of up to four (4) unique safety inputs.
34. The user shall be able to select the text to be displayed on the keypad when the safety opens. The user shall also be able to determine which of the four (4) safety contacts is open over the serial communications connection.
35. Class 10, 20, or 30 (selectable) electronic motor overload protection shall be included.

I. INSTALLATION

Installation shall be the responsibility of the mechanical contractor. The contractor shall install the drive in accordance with the requirements of the VFD manufacturer's installation manual.

J. START-UP

Certified factory start-up shall be provided for each drive by a factory certified service center. A certified start-up form shall be filled out for each drive with a copy provided to the owner, and a copy kept on file at the manufacturer.

K. SUPPORT

- 1) Factory trained application engineering and service personnel that are thoroughly familiar with the VFD products offered shall be locally available at both the specifying and installation locations. A toll free 24/365 technical support line shall be available.

- 2) A computer based training CD or 8-hour professionally generated video (VCR format) shall be provided to the owner at the time of project closeout. The training shall include installation, programming and operation of the VFD, bypass and serial communication.

L. WARRANTY

Warranty shall be 24 months from the date of certified start-up, not to exceed 30 months from the date of shipment. The warranty shall include all parts.

IFB Changes/Correction/Additions:

Page 15, paragraph 2.2.B.: should read: “currently controls 2-speed cooling tower fans.” Strike out “located on the roof of the Public Safety Building.”

Page 13, paragraph 1.1.H.: strike out “14-days” and replace with “7-days” for advanced notice of need to access service alley for setting up the crane.

Page 13, add paragraph 1.1.N.: Parking for the Selected Contractor and his work crew/subs will be in the City’s overflow lot on 23rd Street, across from the Motor Pool Building. Contractor shall submit names of all employees requiring parking passes. Vehicles without parking passes clearly displayed will be subject to towing and all incurred towing expenses will be the responsibility of the Contractor.

Page 14, add to paragraph 1.2: “Other than the time the crane is on site, the driveway for the Sheriff’s sally-port shall remain clear and accessible for the Sheriff’s vehicles to enter the overhead door to the Public Safety Building.”

Page 15, delete paragraph 2.1.B in its entirety.

Page 15, of the IFB, paragraph 2.2.B, should read: “currently controls 2-speed cooling tower fans.” Strike out “located on the roof of the Public Safety Building.”

Page 16, replace paragraph 3.1.E. in its entirety with the following:

SELECTED CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOADING AND TRANSPORT OF COOLING TOWER AND FOR NOTIFYING THE OPERATIONS SUPERINTENDENT AT LEAST 24 HOURS IN ADVANCE OF TRANSPORTING THE TOWER. CONTRACTOR SHALL SIGN OFF ON INSPECTION AND CONDITION OF EQUIPMENT AND SAFELY TRANSPORT EQUIPMENT TO THE JOB SITE. IF EQUIPMENT GETS DAMAGED EN ROUTE TO JOB SITE OR DURING RIGGING AND INSTALLATION, CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING THE EQUIPMENT WITH NEW AND EXACT MODEL.

Additional information on the Davis-Bacon Act:

http://www1.eere.energy.gov/wip/davis-bacon_act.html;

http://www1.eere.energy.gov/wip/pdfs/eecbg_program_guidance_dba_121709_10-004_revised_april_2010.pdf

For additional information on the federal funding requirements go to:

<http://www.gc.energy.gov/GCHotlineFAQ.htm>

http://www1.eere.energy.gov/wip/davis-bacon_act.html;

http://www1.eere.energy.gov/wip/pdfs/eecbg_program_guidance_dba_121709_10-004_revised_april_2010.pdf

Information includes, but is not limited to:

Contractors must pay appropriate wages and on a weekly basis. Weekly payroll records, signed by a company owner or manager, must be submitted to the City. Electronic copies are acceptable. If original payrolls are on paper, then paper copies must be submitted not scanned copies. If the state of Virginia has higher wage rates than the Department of Labor, the state wage rates must be paid. Failure to submit payroll information in compliance with DBA requirements may result in withholding payment to the Contractor.

Sample DOL payroll form attached.

For wage determination information, refer to: www.wdol.gov.

Bidders must attach the applicable wage determinations to this solicitation.

See attached U.S. Wage and Hour Division Rev. Dec. 2008 Payroll (Attached)