

District Name: Henderson County District Code: 251 Facility Name: A.B. Chandler Elementary School Code: 30

Project Name: A.B. Chandler Elementary - HVAC Controls Upgrade

Project Phase: Design Development: ☐ Construction Documents: ☒

1. Site Development	\$	
2. General Construction	\$	
3. Heating, Ventilation & Air Conditioning	\$	68400.00
4. Plumbing (Include Sprinkler System)	\$	
5. Electrical Work	\$	
6. Sewage Disposal System	\$	
7. Total Construction Cost (1-6)	\$	68,400.00
8. Site Acquisition Cost (Purchase Price)	\$	
9. Legal Services	\$	
10. Fiscal Agent Fee	\$	
11. Bond Discount	\$	
12. Architect/Engineer Fee	\$	8037.00
13. Construction/Manager Fee (If Applicable)	\$	
14. Equipment/Furnishings (Not Fixed)/Computers	\$	
15. Property & Topographic Survey	\$	
16. Geotechnical Survey & Report	\$	
17. Special Inspections	\$	
18. Asbestos Abatement	\$	
19. Commissioning Fee	\$	
20. Plan Review Fee	\$	250.00
21. Printing & Distribution of Bid Docs	\$	1500.00
22. Contingencies - Minimum 5% of Line 7	\$	6840.00
23. Other Cost (Describe)	\$	
24. Total Other Cost (8-23)	\$	16,627.00
25. TOTAL PROJECT COST (line 7 + line 24)	\$	85,027.00
a. Gross Square Foot Area*		
b. Total Cost Per Square Foot		na
c. Total Cost Per Pupil	\$	
d. Gross Sq. Ft. Area of Alternates		
* Base Bid Area Only		

Kentucky Registered Architect/Engineer: Nicholas A. Long Date: 5/13/2014

Construction Manager: _____ Date: _____

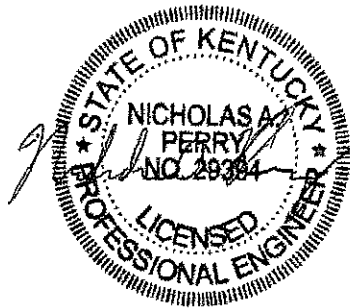
Board of Education Designee: _____ Date: _____

**A.B. CHANDLER
ELEMENTARY SCHOOL
HVAC CONTROLS UPGRADE**

BG # 14-177

FOR

**HENDERSON COUNTY BOARD OF EDUCATION
HENDERSON, KENTUCKY**



**WBW ENGINEERING, INC.
3000 Canton Street
Hopkinsville, KY 42240
270-886-2536**

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ADVERTISEMENT FOR BIDS

The Henderson County Board of Education, Henderson, KY will receive bids for "A.B. Chandler Elementary School – HVAC Controls Upgrade". Bids shall be addressed to Dr. Thomas Richey, Superintendent, and clearly marked "Chandler HVAC Controls Upgrade". It shall be deposited at Henderson County Board of Education, 1805 Second Street, Henderson, KY no later than _____ CDT. Bids will be opened and read aloud.

There will be a Pre-Bid Meeting at the school located at 11215 US 60 West, Corydon, KY 42406 on _____ CDT. It is very important that all bidders be present at this meeting.

Plans and specifications may be obtained from WBW Engineering, 3000 Canton Street, Hopkinsville, KY 42240 270-886-2536 (office@wbwengr.com) All bidders must obtain a set of plans and specifications and be listed as a plan holder.

Contractors must submit a deposit of \$50, payable to WBW Engineering, which is nonrefundable.

Each contractor must deposit with his bid security in the amount, form, and subject to the conditions provided in the Instructions to Bidders (Bid Bond or cashier's check in amount of 5% of proposal) and obtain a 100% Performance and Payment Bond if low bidder.

No bidder may withdraw his bid within sixty days after the actual date of the opening thereof. The Owner reserves the right to accept or reject any or all bids and to waive any irregularities.

BG No. 14-177

Date: _____ To: (Owner) Henderson County Board of Education

Project Name: A.B. Chandler Elementary – HVAC Controls Upgrade Bid Package No. _____

City, County: Corydon, Henderson

Name of Contractor: _____

Mailing Address: _____

Business Address: _____ Telephone: _____

Having carefully examined the Instructions to Bidders, Contract Agreement, General Conditions, Supplemental Conditions, Specifications, and Drawings, for the above referenced project, the undersigned bidder proposes to furnish all labor, materials, equipment, tools, supplies, and temporary devices required to complete the work in accordance with the contract documents and any addenda listed below for the price stated herein.

Addendum _____ (Insert the addendum numbers received or the word "none" if no addendum received.)

BASE BID: For the construction required to complete the work, in accordance with the contract documents, I/We submit the following lump sum price of:

_____ Use Figures

_____ Dollars & _____ Cents

Use Words

Use Words

ALTERNATE BIDS: (If applicable and denoted in the Bidding Documents)

For omission from or addition to those items, services, or construction specified in Bidding Documents by alternate number, the following lump sum price will be added or deducted from the base bid.

Alternate Bid No.	Alternate Description	+ (Add to the Base Bid)	- (Deduct from the Base Bid)	No Cost Change from the Base Bid)
Alt. Bid No. 1				<input type="checkbox"/>
Alt. Bid No. 2				<input type="checkbox"/>
Alt. Bid No. 3				<input type="checkbox"/>
Alt. Bid No. 4				<input type="checkbox"/>
Alt. Bid No. 5				<input type="checkbox"/>
Alt. Bid No. 6				<input type="checkbox"/>
Alt. Bid No. 7				<input type="checkbox"/>
Alt. Bid No. 8				<input type="checkbox"/>
Alt. Bid No. 9				<input type="checkbox"/>
Alt. Bid No. 10				<input type="checkbox"/>

A maximum of 10 Alternate Bids will be acceptable with each Base Bid. Do not add supplemental sheets for Alternate Bids to this document.

LIST OF PROPOSED SUBCONTRACTORS:

List on the lines below each major branch of work and the subcontractor involved with that portion of work. If the branch of work is to be done by the Contractor, so indicate.

The listing of more than one subcontractor in a work category shall invalidate the bid.

The listing of the bidder as the subcontractor for a work category certifies that the bidder has in current employment, skilled staff and necessary equipment to complete that category. The architect/engineer will evaluate the ability of all listed subcontractors to complete the work and notify the owner. Listing of the bidder as the subcontractor may invalidate the bid should the architect's review indicate bidder does not have skilled staff and equipment to complete the work category at the time the bid was submitted.

A maximum of 40 subcontractors will be acceptable with each bid. Do not add supplemental sheets for subcontractors to this document.

The bidder shall submit the list of subcontractors with the bid.

	<u>BRANCH OF WORK</u> (to be filled out by the Architect)	<u>SUBCONTRACTOR</u> (to be filled out by the contractor)
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	BRANCH OF WORK (to be filled out by the Architect)	SUBCONTRACTOR (to be filled out by the Contractor)
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LIST OF PROPOSED SUPPLIERS AND MANUFACTURERS:

List on the lines below each major material category for this project and the suppliers and manufacturers involved with that portion of work. Listing the supplier below means the Contractor is acknowledging authorization from the Supplier to include the Supplier in this bid.

The listing of more than one supplier or manufacturer in a material category shall invalidate the bid.

A maximum of 40 suppliers and manufacturers will be acceptable with each bid. Do not add supplemental sheets for suppliers to this document.

The bidder shall submit the list of suppliers and manufacturers within one (1) hour of the bid.

	<u>MATERIAL DESCRIPTION BY SPECIFICATION DIVISION AND CATEGORY</u> (to be filled out by the Architect or Contractor)	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>MANUFACTURER</u> (to be filled out by the Contractor)
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	<u>MATERIAL DESCRIPTION BY SPECIFICATION DIVISION AND CATEGORY</u> (to be filled out by the Architect or Contractor)	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>MANUFACTURER</u> (to be filled out by the Contractor)
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UNIT PRICES:

Indicate on the lines below those unit prices to determine any adjustment to the contract price due to changes in work or extra work performed under this contract. The unit prices shall include the furnishing of all labor and materials, cost of all items, and overhead and profit for the Contractor, as well as any subcontractor involved. These unit prices shall be listed in units of work.

A maximum of 40 unit prices will be acceptable with each bid. Do not add supplemental sheets for unit pricing to this document.

The bidder shall submit the list of unit prices within one (1) hour of the bid.

	<u>WORK</u> (to be filled out by the Architect)	<u>PRICE / UNIT</u> (to be filled out by the Contractor)	<u>UNIT</u> (to be filled out by the Contractor)
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	<u>WORK</u> (to be filled out by the Architect)	<u>PRICE / UNIT</u> (to be filled out by the Contractor)	<u>UNIT</u> (to be filled out by the Contractor)
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DIRECT MATERIAL PURCHASES:

Indicate on the lines below those materials to be purchased directly by the Owner with a Purchase Order to be issued by the Owner to the individual suppliers. The value of the direct Purchase Order cannot be less than \$5,000. Following the approval of bids, the Contractor shall formalize this list by completing and submitting the electronic Purchase Order Summary Form provided by KDE. Listing the supplier below means the Contractor is acknowledging authorization from the Supplier to include the Supplier in this bid.

A maximum of 50 POs will be acceptable with each bid. Do not add supplemental sheets for additional POs to this document.

The bidder shall submit the list of Purchase Orders within four (4) days of the bid.

	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER DESCRIPTION</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER AMT.</u> (to be filled out by the Contractor)
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	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER DESCRIPTION</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER AMT.</u> (to be filled out by the Contractor)
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	<u>SUPPLIER</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER DESCRIPTION</u> (to be filled out by the Contractor)	<u>PURCHASE ORDER AMT.</u> (to be filled out by the Contractor)
45.			
46.			
47.			
48.			
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50.			

TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS:

In the event that a bidder's proposal is accepted by the Owner and such bidder should fail to execute the contract within ten (10) consecutive days from the date of notification of the awarding of the contract, the Owner, at his option, may determine that the awardee has abandoned the contract. The bidder's proposal shall then become null and void, and the bid bond or certified check which accompanied it shall be forfeited to and become the property of the Owner as liquidated damages for failure to execute the contract.

The bidder hereby agrees that failure to submit herein above all required information and/or prices can cause disqualification of this proposal.

Submitted by:

NAME OF CONTRACTOR / BIDDER: _____

AUTHORIZED REPRESENTATIVE'S NAME: _____
Signature

AUTHORIZED REPRESENTATIVE'S NAME (printed): _____

AUTHORIZED REPRESENTATIVE'S TITLE: _____

NOTICE: *Bid security must accompany this proposal if the Base Bid price is greater than of \$25,000.*

This form shall not be modified.

SPECIAL CONDITIONS

1. Schedule of Work

- a. Last day of school – May 28, 2014
- b. Substantial completion – July 21, 2014
- c. Final completion – July 31, 2014.

2. Access to Building

- a. Contractors shall schedule access to the building with Principal, Brian Gardner at Chandler Elementary. The phone number is 270-533-1760.
- b. Access shall be during normal business hours 8:00 am – 5:00 pm, Monday thru Friday, unless otherwise instructed by the Principal or custodial staff.

3. Contractors Conduct

- a. All workers are to have name and company logo on shirts. Shirts must be worn at all times on the jobsite.
- b. Alcohol, smoking, drugs, firearms, foul language or fraternizing with students and staff are strictly prohibited.
- c. Any workers convicted of felony sex crimes are prohibited from working on the jobsite. This is consistent with the intent of KRS 160.380, Subsection 3.

4. Clean Up - All areas of work shall be cleaned and swept daily. Contractor shall pay for any damages to existing conditions that occur during construction.

5. Warranty: 1 year parts and labor to begin at the date of Substantial Completion. Refer to General Conditions Articles 3.5 and 12.2 for information concerning warranty and correction of work. The contractor shall provide letter of warranty for the owner and engineer's records.

SECTION 15000 – SUMMARY OF WORK**A. GENERAL**

1. Contractor shall remove existing controls and damper actuators for unit ventilators and fan coil units and turn over all removed equipment to owner. Equipment controls shall not be damaged during removal and shall be removed from the following:
 - a. (25) Classroom unit ventilators.
 - b. (7) Fan coil units.
 - c. (4) Gymnasium unit ventilators.
 - d. (2) Media Center/Office area and Kitchen/Cafeteria air handling units.
 - e. The contractor shall turn over existing unit controllers, sensors and damper actuators to the owner upon removal.
2. Contractor to install new DDC controls for the units listed above as follows:
 - a. (1) New DDC unit controller for each unit.
 - b. (2) New DDC actuators for face/by-pass damper and outdoor air/return air damper control as required.
 - c. (1) New discharge air temperature sensor for each unit.
 - d. (1) New wireless zone temperature sensor with set point and override controls for each space.
 - f. (1) New occupancy sensor with contact closures to integrate sensor with lights and building automation system. Occupancy sensor shall be used to completely close the outside air damper and turn off lights when the space is unoccupied.
3. **Base Bid is open to any controls manufacturer. Alternate Bid shall be Trane Controls.**
4. Provide the following to integrate new controls to building automation system:
 - a. (1) New wireless communicator for each unit.
 - b. (1) New system controller and wireless coordinators as required.
 - c. (1) New building controller to integrate with main Trane Tracer ES platform.
5. Provide all necessary relays, control wiring, and control accessories as needed.
6. Trane shall be sub-contracted to integrate upgraded building controller with Tracer ES platform.

7. Contractor shall submit 3 sets of control diagrams and data sheets to Engineer prior to installation.
8. Warranty to include 1 year parts and labor to begin at the date of Substantial Completion.

END OF SECTION 15000

2014

A. Contractor shall provide all necessary rollers, control wiring, etc. to allow for existing units to operate with new control system.

- a. Contractor shall provide all necessary radios, control, wiring, etc. to allow for existing utility to operate with new control system.
- b. Control wiring shall be phnum rated and routed in accordance with the latest edition of the NEC.
- c. Contractor shall provide all all necessary control components to meet design intent and sequence of operations.
- d. Design control graphics and plots shall be updated in the control room etc. Graphics quality shall meet or exceed existing graphics.
- e. Electrical work required shall be performed in accordance with local, Federal, or any other authority codes with jurisdiction.

- A. Comply with applicable local, state, and federal codes.
- B. Comply with applicable requirements of recognized industry associations which publish standards for the various trades.

- A. Comply with applicable local, state, and federal codes.
B. Comply with applicable requirements of recognized industry associations, which publish standards for the various trades.

A. Visit sites and be informed of conditions under which work must be performed.

- A. Veto shall be the informed discretion of the contractor unless such veto may be performed in accordance with the provisions of the contract.
- B. Contractor shall not be required to exercise control while in occupancy.
- C. Recovering vendor shall be selected per owner.
- D. Contractor shall coordinate all work with school operations to allow school staff to prepare for student lunch.
- E. Contractor shall limit use of any existing controls, sensors, cameras, etc. removed from existing equipment. These controls shall be undamaged during removal to allow components to be reused as replacements for units in other schools.
- F. Any damages to existing conditions during construction shall be repaired/replaced by the contractor at no cost to the owner. The contractor shall be responsible for the removal and replacement of all existing equipment and materials removed from the school building to be replaced by the owner's new equipment.
- G. Coordination with non-IT/technology personnel regarding scheduling for installation of equipment shall be the responsibility of the contractor, and/or modified per the sequence of operation.
- H. Contractor shall refer to Special Conditions in the specifications for details on on-site responsibilities including, but not limited to Contractor conduct, clean up of the building, coordination with the owner, data entry, documentation, and any other items listed within the contract documents.

M-1.1 HVAC CONTROL PLAN - CLASSROOM/OFFICE AREAS
M-1.1 HVAC CONTROL PLAN - GYMNASIUM AND KITCHEN/CAFETERIA AREAS

A. Upgrading unit and building controls will allow for substantial energy and operational cost savings.

- B. With the occupancy season approaching the new unit controllers to close the outside air supply, utilizing the occupied status-by-hour, the amount of energy as the unit needs to run to meet set points is decreased. This is achieved by setting the unit to run during the occupancy hours. This is achieved by setting the unit to run during the occupancy hours. This helps decrease the build up of humidity in the space during unoccupied times.
- C. This engineer will also call in new maintenance team required to the staff order to follow up the schedule. This team will improve learning conditions and decrease distractions due to uncomfortable environments in classrooms.
- D. The occupancy sensors that are additional cost savings benefit by automatically controlling the space. Building to run when the space is occupied and turn off when the space is unoccupied.
- E. Benefits from installing new zone sensors include improved space temperature through updated control algorithms implemented by the owner. The space can be kept at a more comfortable temperature by the owner.
- F. Upgrading the controls will also allow the maintenance staff to use the unit controllers to monitor the space and identify any equipment issues. The controls supplier will display unit parameters and the location of the unit within the building which expedites the time required to repair or resolve unit maintenance issues.

Mode:

Mode:	Building Attribute is set to occupied mode and space is occupied.
Occupancy Sensor:	Occupancy sensor shall transmit signal to unit controller to activate unit and shall turn space lighting on when sensor is activated by building controller sitting in the space. User specified schedule in building controller shall determine occupied/unoccupied modes in building controller. Occupancy sensor shall be installed in building attribute is in unoccupied mode, occupancy sensor signal shall not be allowed to activate unit in occupied mode and override building schedule).
Face/Bypass Damper:	Unit controller shall signal new 70/30-pass damper actuator to modulate based on zone sensor set point and load profile.
Outside/Return Air Damper:	Unit controller shall signal actuator to open outside/return air damper to adjustable outside air damper position. Outside air damper position shall be adjustable through user front end controls.
Fan Operations:	Unit controller shall activate fan and set fan speed to high.

Modo:

Methods:	
Occupancy Sensor	Occupancy sensor shall detect signal to unit; controller to put unit in occupied-mode standby and turn space lighting off when sensor is inactive by empty space. User specifies schedule in building controller shall determine when sensor becomes active in building controller shall determine when sensor becomes inactive. If building schedule is in unoccupied mode, occupancy sensor signal shall not be allowed to activate unit to occupied mode and (override building schedule).
Face/Bypass Damper	Unit controller shall signal face/bypass damper actuator to modulate based on zone setpoint and load profile.
Outside Return Air Damper	Unit controller shall signal actuator to close outside/return air damper and completely close outside air damper position.
Fan Operation	Unit controller shall activate fan and set fan speed to low.

Mode:

Mode:	Building schedule is set to unoccupied mode and space is empty or occupied.
Occupancy Sensor:	Occupancy sensor shall output signal to turn space lighting on/off based on occupancy. Building controller shall override occupancy sensor signal to unit controller.
Fan/By-pass Damper:	Unit controller shall signal fans/By-pass damper actuator to modulate based on zone sensor set point and load profile.
Variable Air Volume Damper:	Unit controller shall signal actuator to close partially, return air damper and completely close outside air damper position.
Fan Operation:	Unit controller shall activate fan to maintain zone sensor set point and maintain fan speed. When space temperature is satisfied, fan shall be slowed down.

Moda:

Monitor:	Building schedule is set to occupied mode and space is occupied.
Occupancy Sensor:	Occupancy sensor shall output signal to unit controller to activate unit and shall turn space lighting on when sensor is activated by occupant's entering or in the space. User specified schedule in building control system shall not override building controller (e.g., if building schedule is to unoccupied mode, occupancy sensor signal shall not be allowed to activate unit in occupied space and override building schedule).
Free/ Bypass Damper:	Unit controller shall signal free/bypass damper actuator to modulate based on zone sensor set point and load profile.
Fan Operation:	Unit controller shall activate fan and set fan speed to high.

Mode:

Mode:	Building schedule is set to occupied mode and space is empty.
Occupancy Sensor:	Occupancy sensor shall output signal to unit controller to turn unit in occupied-mode standby and turn space lighting off when sensor is inactive by empty space. User specified schedule in building controller shall determine occupied/unoccupied mode and occupancy sensor shall not override building controller (e.g., if occupancy sensor is active, unit shall not be set to occupied mode and shall not be allowed to activate unit in occupied mode and override building schedule).
Free/By-pass Damper:	Unit controller shall ignore free/by-pass damper actuator to maintain based on zone space set point and damper profile.
Fan Operation:	Unit controller shall activate fan and set fan speed to low.

Mode:

Notes:	Building schedule is set to unscripted mode and space is empty or occupied.
Occupancy Sensor:	Occupancy sensors shall output signals to turn space lighting on/off based on occupancy. Building controller shall determine occupancy sensor signal to turn controller.
Free/Busy/Presence Detector:	Unit controller shall signal free/busy/space damper actuator to modulate based on sensor set point and zone profile.
Fan Operation:	Unit controller shall activate fan to maintain space sensor set point and limit profile. When space temperature is satisfied, fan shall be deactivated.

OCCUPIED MODE

Mode:	Building schedule is set to occupancy mode.
3-Way Water Control Valve:	Unit controller shall signal 3-way control valve actuator to modulate based on zone sensor set point and load profile.
Fan Operation:	Unit controller shall actuate fan.

Mode:

Master:	Bulldozing schedule is set to unoccupied mode.
3rd/2nd Water Control Valve:	Unit controller shall signal 3-way control valve actuator to modulate based on zone sensor set point and load profile.
Fan Operation:	Unit controller shall deaccelerate fan.

