



## REQUEST FOR BOARD ACTION

ITEM NO. 26.

**DATE OF MEETING:** August 2, 2010

**REQUESTED BY:** Rick Benton, County Manager

**SHORT TITLE:** Resolution Approving Contract Amendment and Purchase Orders for the Courthouse Renovation Project: \$174,244

**BACKGROUND:** The Board approved a construction contract for the Phase I Courthouse Renovation project in August, 2009 in the amount of \$396,057 to Port City Builders, Inc. Since that time and as the work has progressed, many unforeseen building issues have had to be addressed. Architect Warren Wilson has reviewed the project and has recommended \$114,602 is required to complete the project.

Recently a new boiler was installed at the Courthouse; however, associated work to the boiler room required for State inspection approval was not included in the installation project. A proposal from Tim's Heating and Air Conditioning is provided totaling \$7,672.

In addition, the cooling tower equipment has been failing for more than a year, and is at the point of needing to be replaced immediately (see attached report from Tim's Heating and Cooling Inc.). The proposed cost is \$51,970.

Therefore, the Board is requested to consider approval of an increase in the contract and purchase order to Port City Builders, Inc. in the amount of \$114,602. In addition, the Board is requested to consider approval of a purchase order to Tim's Heating and Air Conditioning in the amount of \$59,642 for work associated with the boiler and replacement of the cooling tower.

**SPECIFIC ACTION REQUESTED:** To adopt a resolution approving an increase in the purchase order to Port City Builders, Inc. in the amount of \$114,602. In addition, the Board is requested to consider approval of a purchase order to Tim's Heating and Air Conditioning in the amount of \$59,642.

**COUNTY MANAGER'S RECOMMENDATION**

Respectfully recommend approval. This funding request provides for an appropriation of fund balance for a capital project, not a recurring operating cost.

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**RESOLUTION**

**NOW, THEREFORE BE IT RESOLVED** by the Pender County Board of Commissioners that:

the Board hereby approves an amendment to the contract and purchase order with Port City Builders, Inc. in the amount of \$114,602, for a total contract amount of \$510,659; and further approves a purchase order to Tim's Heating and Air Conditioning in the amount of \$59,642 for work associated with the new boiler and replacement of the cooling tower.

Revenue Account: 10-399000 (Fund Balance)  
Expenditure Account: 60-407422 (Courthouse Renovation CIP 6067)

**AMENDMENTS:**

MOVED \_\_\_\_\_ SECONDED \_\_\_\_\_

APPROVED \_\_\_\_\_ DENIED \_\_\_\_\_ UNANIMOUS

YEA VOTES: Tate \_\_\_ Blanchard \_\_\_ Brown \_\_\_ Rivenbark \_\_\_ Williams \_\_\_

\_\_\_\_\_  
Jimmy T. Tate, Chairman                      Date

\_\_\_\_\_  
ATTEST    Date

BID # 4235	DATE:	07/13/2010
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To: Pender County Public Works  
 Job Name: Pender County Courthouse Cooling Tower  
 Job Location: Pender County Courthouse  
 City, State, Zip: Burgaw, NC 28425  
 Billing Address: P.O. Box 1205  
 City, State, Zip: Burgaw, NC 28425  
 Office: 910-259-1249  
 Mobile:  
 Fax: 910-259-1297

*Proposal: Cooling Tower Replacement*

We are pleased to submit the following bid:

**Job Description:**

\*\* Tim's Heating and Air Conditioning, Inc. (THAC, Inc.) to provide and install the following as described below.

- 1) THAC, Inc. to provide and install (1) Counter flow Cooling Tower by Baltimore Aircoil Company. Unit to be 208/230 volt 3 phase.
- 1a) Included items with Equipment (See pages 3 -5 for all equipment summary and equipment details included in this proposal)
  - \* Premium efficient 15 HP motor.
  - \* Electric water leveling control.
  - \* Bottom security screens
  - \* Extended lubrication lines
  - \* Ballibond corrosion protection
  - \* Basin heater with thermostat & cutout
  - \* Motor starter panel, NEMA 3R tower fan starter panel for 15 HP motor (NOTE: Not needed with VFD control)
- 2) THAC, Inc. to remove existing Baltimore Aircoil Cooling Tower and all HVAC trash from premises.
- 3) THAC, Inc. to provide crane service for the removal and installation of new tower.
- 4) THAC, Inc. to provide line voltage wiring for reconnecting of line voltage wiring. Install new motor starter panel, size all fuse/breaker as per manufacturers specifications. Replace (2) existing outdoor line voltage disconnects.
- 5) THAC, Inc. to provide and install low voltage control wiring to all controls as per manufacturers specifications.
- 6) THAC, Inc. to provide and install schedule 80 CPVC piping from new tower to existing 6" piping. Reconnect as needed and insulate as per code. Reconnect water inlet, water drain and insulate.
- 7) THAC, Inc. to extend existing concrete pad to accommodate new tower footprint. Extended existing concrete pad approx. 3' in length, 18" deep with 6" x 6" #2 rebar in 3,000 lb concrete. Pad to be poured a minimum of 4 days prior setting equipment to pad for curing purposes.
- 8) See attached page 2 for Equipment Summary
- 9) See attached page 3 for Equipment Details
- 10) THAC, Inc. to install mechanical equipment and materials as per manufacturers specifications and per NC code.

Option #1 - Install VFD drive

- A) THAC, Inc. to provide and install a variable frequency drive (VFD) to new tower.
- B) THAC, Inc. to provide and install proper control wiring to accommodate VFD.
- C) THAC, Inc. to provide controls commissioning for VFD.

**Note:** Option #1 will be much quieter system. When building has highly variable loads VFD would be advantageous in energy savings. Existing tower has only one speed and runs continuous even on low loads.

*operating cost savings = \$2,889/yr. estimated by analysis (versus single speed) (2.3 yr. return)*

DESCRIPTION	LABOR	MATERIAL	TOTAL
Material and labor as described above	\$6,870.00	\$38,480.00	\$45,350.00
Option #1 material and labor as described above.	\$1,145.00	\$5,475.00	\$6,620.00
			\$0.00
			\$0.00
			\$0.00
<b>Standard delivery time is 8 weeks</b>			
		<b>TOTAL</b>	<b>\$51,970.00</b>

<b>Warranty</b>			
5 Yr. Motor Drive			
1 Yr. on tower and components of tower			
1 Yr. Labor			
<b>*Terms: To be determined.</b>			
			\$0.00
This bid prepared by: Tim Merritt / pres. THAC, Inc.		<b>Base Bid</b>	\$51,970.00
	<b>Date Accepted</b>	<b>Total Bid</b>	\$51,970.00
<b>SIGNATURE :</b>		<b>Valid Until</b>	08/05/2010
			Page 1 of 5

Billing: 64 Merganser Loop  
Rocky Point, NC 28457  
Physical: 103 S Wright St.  
Burgaw, NC 28425



Phone: 910-259-8804  
Fax: 910-259-7024  
Mobile: 910-604-1485

*The Name You Can Trust!*

7-13-10

To: Public Works  
Cc: David Hahn – MCBH Engineering  
Re: Pender County Courthouse Cooling Tower  
From: Tim Merritt w/ Tim's Heating and Air Conditioning, Inc. (THAC, Inc.)

Please see below the explanation of justification of Cooling Tower replacement at the Pender County Courthouse.

**1. Type of HVAC system currently in place at the Courthouse:**

Currently all the HVAC units in the Courthouse are water source heat pumps. The water source comes from a closed water loop piping system that circulates water through the heat pumps heat exchanger/condenser coil. The piping loop is located in the courthouse crawl space and branched out to each heat pump. The loop has a supply line and a return line. The water continuously flows through the piping system to warm or cool the heat exchanger/condenser coil depending on which season system is operating in.

A traditional air cooled system depends on the outside air to warm or cool condenser coil with a fan blade to move air across the coil. Standard air cooled systems are not as efficient as water source systems because the air outside changes temperatures constantly. However, the water in the water source loop system piping does need to have mechanical assistance to warm or cool the water in the loop. A cooling tower is currently in place to cool the water in the summer months.

**2. Current conditions of cooling tower:**

- \* The current cooling tower manufacturer is by "Baltimore Air Coil Company".
- \* The current cooling tower was manufactured in 1988 and is 22 years in age.
- \* The current cooling tower capacity is too small for existing building cooling load at very high ambient temperatures. (This is due to increasing cooling load of building and the decreasing efficiency of tower.)
- \* The current operating conditions of the cooling tower are in very poor condition. Tower is leaking water, internal blower wheels are deteriorating, blower housing is deteriorating, and blower shaft is warped and is worn in the middle at center sleeve bearing. Shaft conditions are causing inner and outer bearings to fail.
- \* To keep tower operating without further damage, bearings have to be replaced approximately monthly.
- \* Repair cost to mechanical parts of tower would exceed \$25,000.00. At that cost it would not be cost effective to repair tower due to age and inadequate in size.
- \* Extensive repairs or replacement of tower must be made quickly. Operation of tower is being monitored daily. It is possible at any given time; tower will have to be shut down for minor or major repairs just to keep on line so courthouse will have cooling in building.

**3. Function of cooling tower:**

- \* Tower is needed to maintain water temperature (in the summer months) at 95F – 85F degrees. Cooled water is returned to heat pump to keep condensing coils cool for cooling mode.
- \* Maintaining water temperature at + - 90 degrees will allow existing HVAC systems to operate at their highest capacities and efficiency's in the cooling mode.
- \* Operating systems at manufacturer's specifications will reduce repair cost.
- \* Operating cost will decrease due to operating efficiencies increasing.
- \* Temperature in building will be properly maintained.
- \* Without cooling tower air conditioning systems in courthouse will not operate.

If I can be of any further assistance on this matter please call me at my office or my mobile.

Thanks much,

A handwritten signature in black ink, appearing to read 'Tim Merritt', with a large, stylized flourish at the end.

Tim Merritt pres. / THAC, Inc.

**Billing: 64 Merganser Loop  
Rocky Point, NC 28457  
Physical: 103 S Wright St.  
Burgaw, NC 28425**



**Phone: 910-259-8804  
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Mobile: 910-604-1485**

*The Name You Can Trust!*

**7-13-10**

**Quantity: 1 Model VT0-107-L Cooling Tower Unit**

Certified Capacity: 260.00 USGPM of water from 95.00°F to 85.00°F at 80.00°F entering air wet bulb.

Fan Motor(s): One (1) 15 HP fan motor(s): Totally Enclosed, Fan Cooled (TEFC),  
1 Speed/1 Winding - Premium Efficiency (Inverter Duty), suitable for 200 volt, 3 phase,  
60 hertz electrical service. Drives are based on 0 inches ESP.

NOTE: Inverter Duty fan motors, furnished in accordance with NEMA Standard Mg.1 -- Part 31, are required for applications using variable frequency drives for fan motor control.

#### **Equipment Summary**

- Forced Draft, Counterflow Cooling Tower
- Quality Assurance - ISO 9001 Certified
- Unit Energy Efficiency per ASHRAE Standard 90.1-2004
- CTI Certified Thermal Performance
- Steel Panels and Structural Members are Constructed of Galvanized Steel Furnished with the BALTIBOND® Corrosion Protection System
- Non-Corroding PVC Film Fill Material with a Flame Spread Rating of 5
- Polyvinyl Chloride (PVC) Drift Eliminators
- Standard Unit Anchorage
- End Outlet Pump Suction Connection
- Electric Water Level Control Package
- Electric Immersion Heaters Sized to Maintain +40°F water at a 0°F Ambient with Electrical Requirements Matching Fan Motor(s)

- Heater Control Panel with Contactor and Disconnect
- Extended Bearing Lubrication Lines
- Galvanized Steel Bottom Screens with the BALTIBOND® Corrosion Protection System

**Equipment Details - All Information is Per Unit**

**Unit Type:**

This unit will be a factory assembled, forced draft, conerflow cooling tower with vertical discharge.

**Quality Assurance:**

Each unit will be manufactured under closely-controlled conditions using standardized parts to ensure each unit is built precisely to the same high-quality design and construction standards. The design, manufacture, and business processes of Baltimore Aircoil Company are ISO 9001:2000 certified.

**Unit Efficiency:**

The unit(s) will comply with the energy efficiency requirements established by ASHRAE Standard 90.1-2004.

**CTI Certification:**

The thermal performance of this BAC unit has been certified through performance tests conducted by the Cooling Technology Institute in accordance with their standard STD-201. Such certification by an independent third party assures engineers and users that the published thermal capacities accurately reflect the actual unit performance. CTI certification eliminates the additional costs of on-site, individual unit testing, oversizing the equipment or operating cost penalties from deficient equipment.

**Materials of Construction:**

Structural members, hot and cold water basins, fan deck, and fan cylinder can be furnished with the BALTIBOND® Corrosion Protection System. This system extends the equipment life and provides a cost effective solution for installations that may require additional protection beyond galvanized equipment due to uncertain or poor water quality, environmental considerations, or equipment location. The BALTIBOND® Corrosion Protection System is the best and most cost-effective combination of materials and methods found for providing durable, long-life evaporative cooling equipment. The five-year warranty provided on all BAC evaporative cooling equipment is the most comprehensive fan motor and mechanical equipment warranty available in the industry. Included in the five-year warranty are the mechanical equipment support, fan(s), fan shaft(s), bearings, sheaves, and fan motor(s).

**Wet Deck Material:**

The patented BAC Wet Deck and eliminators used in the unit have been engineered to provide a maximum air/water contact and low air pressure drop to ensure efficient heat transfer with minimum fan power requirements. The wet deck surface and eliminators are constructed from serpentine Polyvinyl Chloride (PVC). The wet deck surface is impervious to rot, decay, fungus or biological attack and have a flame spread rating of 5 per ASTM Standard E-84-77a. The eliminators are designed to effectively strip entrained moisture from the leaving airstream.

**Drift Eliminators:**

Drift eliminators will be constructed of polyvinyl chloride (PVC), and will be removable in easily handled sections. They will impart three distinct changes in air direction to effectively strip entrained moisture from the leaving airstream with minimum air resistance.

**Unit Anchorage:**

When supported as recommended, the unit has anchorage to resist windloads up to 30 psf (146.6 kg/m<sup>2</sup>) acting on the full vertical projected area with 16 psf (78.1 kg/m<sup>2</sup>) acting simultaneously on the full horizontal projected area or seismic forces of 112% of the operating weight acting in the horizontal direction, and 14% of the operating weight acting in the vertical direction applied at the center of gravity.

**Water Outlet(s):**

The water outlet connection is beveled for welding and supplied with a mechanical groove to facilitate connection to field piping. Additionally, a large area lift out strainer screen with anti-vortexing hood is included to prevent air entrainment.

**Basin Water Level Control:**

A factory-set electric water level control system can be substituted for the standard mechanical make-up valve to provide accurate water level control. No field adjustment is necessary despite variations in thermal loads on a tower or variations with in the normal range of make-up water supply pressures (15 to 50 psig). This system consists of a conductance-actuated control/assembly, mounted in the cold water basin. A slow closing solenoid valve is shipped loose for field installation at the make-up water connection on the unit. All wiring must be provided by others. If the make-up supply pressure is high (>40 psig) and/or the solenoid valve is at the end of a lengthy pipe, a surge suppresser maybe required (by others).

**Basin Heater(s):**

Units exposed to below freezing ambient temperatures require protection to prevent freezing of the basin water when the unit is idle. The heater(s) have been selected to maintain +40° F basin water temperatures offering a simple and inexpensive way of providing such protection. The electric immersion heaters are factory installed.

**Basin Heater Control:**

The control panel will be in a NEMA 4 enclosure and includes contactor(s), disconnect, thermostat, 24V transformer, and Type 316 stainless steel probe for water level and water temperature sensing. Field mounting and wiring are by others.

**Extended Lube Line(s):**

Bearing lubrication lines will be extended from each bearing to grease fittings located on the face of the unit for ease of access.

**Air Intake Option:**

Galvanized steel bottom screens with the Baltibond Corrosion Protection System will be provided with a 1" X 1" mesh to prevent debris from entering unit. This option also includes lubrication fittings extended to outside of fan section.

This Proposal prepared by: Tim Merritt pres. / THAC, Inc.





# PENDER COUNTY COURTHOUSE - PHASED IMPROVEMENTS

Updated 7.25.2010

	Original Building gross sq. ft.	Built 1936	20834	
	1st floor		8586	
	2nd floor		7093	
	3rd floor		4726	
		Totals	\$475,000	<u>\$511,000</u>
PHASE 1 - CODE / SECURITY IMPROVEMENTS				
1.1	Repair wood entrance doors first floor			\$24,000
1.2	Install security scanning equipment at west entrance			\$20,000
1.3	Renovate area on second floor for "defendant holding"			\$120,000
1.4	Renovate area in court room for secure defendant seating			\$21,000
1.5	Additional technology / telecom / ups			\$36,000
1.6	Install new glass entries at north & south locations			\$22,000
1.7	Enlarge existing public toilets			\$66,000
1.8	Upgrade fire protection / alarm for entire building			\$31,500
1.9	Create server room			\$15,000
1.10	Sitework - South entry drive & parking for police vehicles			\$27,000
1.11	Misc. eqpt. / utility repairs / rentals			\$29,800
1.12	Courtroom lighting			\$30,000
1.13	Technology / telecom / security upgrades			\$45,000
1.14	Renovate area for civil clerk of court - Cashiers			\$18,000
1.15	Repair south stairs & porch area			\$5,700
PHASE 2 - NORTH WING IMPROVEMENTS				<u>\$160,300</u>
2.1	Renovate area for new conference room - 1st floor			\$37,200
2.2	Renovate area for small court room - 2nd floor			\$48,600
2.3	Renovate areas for D.A. suite - 3rd floor			\$74,500
PHASE 2 - SOUTH WING IMPROVEMENTS				<u>\$366,500</u>
2.4	Install wheelchair lift for accessibility 1-3 floors			\$35,000
2.5	Renovate area for estates - 1st floor			\$58,600
2.6	Renovate area for criminal clerk of court - 1st floor			\$54,000
2.7	Renovate area for office & kitchenette - 1st floor			\$20,400
2.8	Renovate area for Judge Trawick's office - 1st floor			\$19,000
2.9	Renovate area for Judge Faison's office - 2nd floor			\$9,000
2.10	Renovate area for JSury deliberation / ADA toilet - 2nd floor			\$25,500
2.11	Renovate Judge's chambers / ADA toilet - 2nd floor			\$26,000
2.12	Renovate area for legal research / file storage - 3rd floor			\$39,000
2.13	Renovate area for break room & ADA toilet - 3rd floor			\$23,000
2.14	Renovate area for Attorneys' conference room - 3rd floor			\$32,000
2.15	Courtroom LCD screen(s)			\$25,000
PHASE 3 - OTHER ITEMS				<u>\$248,500</u>
3.1	Additional file storage (collapsible, offsite)			\$80,000
3.2	Generator / transfer switch			\$75,000
3.3	Court room projection system			\$15,000
3.4	Renovate balcony into usable area - 3rd floor			\$33,500
3.5	Renovate Staff toilets - 2nd floor			\$15,000
3.6	Replace Courtroom seating			\$30,000
Total Phase 2: N&S wings				\$526,800
Total Phases 2 & 3				<u>\$775,300</u>
Grand Total Phases 1 - 3				\$1,286,300