Bid #19-204
Cooling Tower Replacements
Pre-Bid Meeting –January 22, 2019
Minutes

Attendees:	Mark Carver, Director of Facilities	
	Ethan Butts, Assistant Director of Facilities	
	Russell Landen, IT Technician	
	Christina Vann, Administrative Assistant Facilities	
	Wes Wilson	Certified Air Contractors
	Gary Shine	Shine Co. Inc.
	Jason Johnson	Air Mechanical & Service
	Scott Gordon	Quantum Mechanical
	Christopher Sprinkle	Johnson Controls, Inc.
	John Nelson	Nelson & Co.
	Jason LeCouris	Johnson Controls, Inc.

Each attendee was given a hand-out (attached), outlining the bid specifications and requirements. Each attendee signed in. The meeting began at promptly 9:00 a.m. Mark Carver, Director of Facilities, welcomed everyone and introduced himself. Mr. Carver briefly described the systems at both Suwannee Middle School and Suwannee High School. SMS has two chiller towers and SHS has one. Mr. Carver explained that we are flexible in receiving quotes for either gear driven or belt driven systems.

The floor was then open to questions:

Question 1: Are the dates of completion flexible?

Answer: Yes. Weather is always a factor. Also, we will be mindful of manufacturers lead times and scheduling within the school. The spring break holiday is April 15-19, 2019.

Question 2: Is there a bid bond requirement?

Answer: No.

Question 3: Is there a performance and payment bond?

Answer: Yes

Question 4: Is there a chemical subcontractor, or will we have to contact one.

Answer: Yes. Chem Aqua is our current sub.

Question 5: Is the warranty required on the parts and labor?

Answer: Yes.

Question 6: Will we have to do pre and post testing? Will we be responsible for cleaning the strainers.

Answer: Yes, testing is required. The strainers are part of the replacement, therefore will be subject to our yearly servicing moving forward.

Mr. Carver mentioned our preference of a detailed schedule of values listed in the bid. He then stated that we would be willing to direct purchase the towers. He also mentioned that progressive draws could be made on the project.

The formal meeting adjourned and then recommenced at Suwannee Middle School for the first site visit.

SMS:

There are two towers at this site.

Mr. Shine graciously measured the towers: 8' X 18'

Existing: Baltimore Aircoil Company Model# 3644C

Question 7: Is the foundation solid, poured concrete? We will issue this answer in an RFI, separate from the minutes.

Question 8: Will there be any special hurricane, tie-down requirements?

Answer: Use the Manufacturers recommendations.

Question 9: There was a question confirming that the existing towers would remain the property of SCSB.

Answer: Yes. We would provide a trailer for the existing towers to be placed on and we would manage them from that point.

The chiller plant was toured and each attendee was free to take pictures and walk around.

We then went to Suwannee High School.

SHS:

Mr. Shine again measured the existing tower: 7' 10" x 18' 2"

Existing: Baltimore Aircoil Company Model# 3269GS

Question 10: Steel or PVC piping?

Answer: PVC is acceptable, Schedule 80

The chiller plant was toured and each attendee was free to take pictures and walk around.

Mr. Carver then thanked each attendee for coming and reminded them that any questions needed to be submitted in writing and the answers would be posted online for all to see.

Cooling Tower bid # 19-204

Mandatory pre-Bid and Site Visit -Jan 22, 2019

	Each Unit
Flow:	750.0 GPM
Fluid:	Water
Entering Fluid Temp:	95.0°F
Leaving Fluid Temp	85.0°F
Entering Wet Bulb:	80.0°F

Required Capacity
3,750.00 MBH
250 Tons

Fan Driven by Electric Motor with multi-speed capability

New Motor Control Components

Gearbox or Belt and Pulley

Stainless Cold Water Basin

Provide and install external service platform with ladder.

Provide and install water level control and piping to the supply water source.

Provide new basin temperature probe, wiring and configuring to system provided motor speed type.

Provide demolition/disconnection of existing towers including electrical.

Old towers and equipment to be turned over to the owner.

Provide and install all new electrical control components.

> If existing wiring from the tower to building is in good condition and the appropriate size, make new terminations at the new tower points and new controls mounted inside the building at the control center.

Provide all demolition of the existing piping.

Provide and install new flanges, gaskets, bolts, valves, strainers and insulation to accommodate the configuration of the new provided tower system.

Contractor is responsible for any and all demolition of the existing tower foundation, as required for the new foundation installation.

Provide and install any and all foundation additions or modifications to accommodate the new tower frame per the manufacturers recommendations.

Contractor is responsible for all equipment needed to remove and install the new towers.

Contractor is required to leave the job site clean and vacant of all debris that is a result of the project.

Permitting the job will be through the NEFEC building official at no cost. Inspections will be required and scheduled as necessary by the contractor.

Bid Stainless upper section as an add option

Bid Sump sweeper piping or system as an add option

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes factory assembled and tested, open circuit mechanical induced draft vertical discharge cooling tower.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, pressure drop, performance curves with selected points indicated, furnished specialties, and accessories.

B. Shop Drawings: Complete set of manufacturer's prints of equipment assemblies, control panels, sections and elevations, and unit isolation. Include the following:

1. Assembled unit dimensions.
2. Weight and load distribution.
3. Required clearances for maintenance and operation.
4. Sizes and locations of piping and wiring connections.
5. Wiring Diagrams: For power, signal, and control wiring. Differentiate between manufacturer installed and field installed wiring.

C. Operation and Maintenance Data: Each unit to include operation and maintenance manual.

1.4 QUALITY ASSURANCE

A. Verification of Performance:

1. The thermal performance shall be certified by the Cooling Technology Institute in accordance with CTI Certification Standard STD-201. Lacking such certification, a field acceptance test shall be conducted within the warranty period in accordance with CTI Acceptance Test Code ATC-105, by a Certified CTI Thermal Testing Agency. The Evaporative Heat Rejection Equipment shall comply with the energy efficiency requirements of ASHRAE Standard 90.1.
2. Unit Sound Performance ratings shall be tested according to CTI ATC-128 standard. Sound ratings shall not exceed specified ratings.

B. Unit shall meet or exceed energy efficiency per ASHRAE 90.1

1.5 WARRANTY

A. Submit a written warranty executed by the manufacturer, agreeing to repair or replace components of the unit that fail in materials and workmanship within the specified warranty period.

1. The Entire Unit shall have a comprehensive five (5) year warranty against defects in materials and workmanship from the date of shipment.

2. Fan Motor/Drive System: Warranty Period shall be Five (5) years from date of unit shipment from Factory (fan motor(s), fan(s), fan shaft(s), bearings, mechanical support, sheaves, bushings and belt(s).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide cooling towers manufactured by one of the following:
All proposals will be considered

2.2 THERMAL PERFORMANCE

A. Each unit shall be capable to cool 750.0 GPM of water entering at 95.0° F leaving at 85.0° F at a design entering wet bulb of 80.0° F.

2.3 IBC COMPLIANCE

A. The unit structure shall be designed, analyzed, and constructed in accordance with the latest edition of International Building Code (IBC) for: I_P = 1.0, S_{DS} = 1.34; z/h = 0, P = 119 psf.

2.4 COMPONENTS

A. Description: Factory assembled and tested, induced draft counter flow cooling tower complete with fan, fill, louvers, accessories and rigging supports

B. Materials of Construction

1. All cold water basin components including vertical supports, air inlet louver frames and panels up to rigging seam shall be constructed of Type 304 Stainless Steel. All factory cold water basin seams shall be welded for water tight construction.
2. Casing and fan section, including channels and angle supports, shall be constructed of Type 304 stainless steel. Fan cowl and guard shall be constructed of Type 304 StainlessSteel. "Series 300" stainless steel will not be acceptable as equivalent to Type 304 Stainless Steel.

C. Fan(s):

1. Fan(s) shall be high efficiency axial propeller type with aluminum wide chord blade construction. Each fan shall be dynamically balanced and installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency.

D. Drift Eliminators

1. Drift eliminators shall be constructed entirely of Polyvinyl Chloride (PVC) in easily handled sections. Design shall incorporate three changes in air direction and limit the water carryover to a maximum of 0.001% of the recirculating water rate.

E. Water Distribution System

1. Spray nozzles shall be precision molded ABS, large orifice nozzles utilizing fluidic technology for superior water distribution over the fill media. Nozzles shall be designed to minimize water distribution system maintenance. Spray header and branches shall be Schedule 40 Polyvinyl Chloride (PVC) for corrosion resistance with a steel connection to attach external piping.

F. Heat Transfer Media

1. Fill media shall be constructed of Polyvinyl Chloride (PVC) of cross-fluted design and suitable for inlet water temperatures up to 130° F. The bonded block fill shall be bottom supported and suitable as an internal working platform. Fill shall be self-extinguishing, have a flame spread of 5 under A.S.T.M. designation E-84-81a, and shall be resistant to rot, decay and biological attack.

G. Air Inlet Louvers

1. The air inlet louver screens shall be constructed from UV inhibited polyvinyl chloride (PVC) and incorporate a framed interlocking design that allows for easy removal of louver screens for access to the entire basin area for maintenance. The louver screens shall have a minimum of two changes in air direction and shall be of a non-planar design to prevent splash-out and block direct sunlight & debris from entering the basin.

H. Electronic Water Level Control

1. Electronic water level control package shall have three (3) stainless steel water level sensors (one (1) high level, one (1) low level and one (1) ground) with a NEMA 4x enclosure mounted in a cleanable Schedule 40 PVC external standpipe with slow closing solenoid valve(s) and "y" strainer(s). Wiring is not included and components must be field mounted. Valves shall be sized for 25 psi minimum to 125 psi maximum pressure. Standpipe may require heat tracing by others in cold weather applications.

I. Pan Strainer

1. Pan Strainer(s) shall be all Type 304 Stainless Steel construction with large area removable perforated screens.

2.5 MOTORS AND DRIVES

A. General requirements for motors are specified in Division 23 Section “Motors”

B. Fan Motor

1. Fan motor(s) shall be totally enclosed, ball bearing type electric motor(s) suitable for moist air service. Motor(s) are Premium Efficient, Class F insulated, 1.15 service factor design. Inverter rated per NEMA MG1 Part 31.4.4.2 and suitable for variable torque applications and constant torque speed range with properly sized and adjusted variable frequency drives.

2. Fan motor(s) shall include strip-type space heaters with separate leads brought to the motor conduit box.

C. Fan Drive

1. The fan drive shall be multi-groove, solid back V-belt type with QD tapered bushings designed for 150% of the motor nameplate power. The belt material shall be neoprene reinforced with polyester cord and specifically designed for evaporative equipment service. Fan sheave shall be aluminum alloy construction. Belt adjustment shall be accomplished from the exterior of the unit. D. Fan Shaft

a. Fan shaft shall be solid, ground and polished steel. Exposed surface shall be coated with rust preventative.

2. Gear Driven fan with external motor and dive shaft assembly will be considered.

E. Fan Shaft Bearings

1. Fan Shaft Bearings shall be heavy-duty, self-aligning ball type bearings with extended lubrication lines to grease fittings located on access door frame. Bearings shall be designed for a minimum L-10 life of 100,000 hours.

F. Vibration Switch

1. Unit shall be provided with a Vibration Cutout Switch, operating on 120 VAC feed, to protect the fan and drive assembly from damage in the event of excess vibration. Vibration switch shall be DPDT.

2.6 MAINTENANCE ACCESS

A. Fan Section

1. Access door shall be hinged and located in the fan section for fan drive and water distribution system access. Swing away motor cover shall be hinged for motor access.

B. Basin Section

1. Framed removable louver panels shall be on all four (4) sides of the unit for pan and sump access.

C. Internal Working Platform

1. Internal working platform shall provide easy access to the fans, belts, motors, sheaves, bearings, all mechanical equipment and complete water distribution system. The fill shall be an acceptable means of accessing these components.

D. External Service Platform with Ladder

1. An external service platform compliant with OSHA shall be provided at the motor access door of the unit extending the full length of the access door. Each platform shall have at least a 36 inch wide walking surface. The platforms shall have galvanized steel grating, supported by galvanized steel framework attached to the unit and surrounded by a handrail, knee rail and toe plate system that is compliant with OSHA. Mounting channels shall be the same material as the casing section (galvanized or stainless steel). A vertical ladder shall be provided from the base of the unit to the platform.

2. Safety cage(s) shall be provided on all vertical ladder(s) and ship mounted. Safety cage(s) shall begin between 7 feet (minimum) and 8 feet (maximum) above grade.

E. Motor Davit with Base

1. Unit shall be provided with mechanical external motor davit assembly, which facilitates in removal of larger fan section components. Davit arm shall be constructed of aluminum and base shall be galvanized steel.

2.7 ACCESSORIES

A. Sump Sweeper Piping

1. Cold-water basin shall be fitted with schedule 80 PVC sump sweeper piping to facilitate basin cleaning. The system shall contain one inlet connection and one outlet connection per basin.

B. Piping Connections

1. Inlet and outlet connections shall be flanged Class 150#.