ACADEMIC VILLAGE COOLING TOWER

INVITATION FOR BID # PSPW-25-10

Issuance of Solicitation: Tuesday, June 24, 2025

Questions Due Date: Tuesday, July 15, 2025

Bid Submission Deadline: Tuesday, July 29, 2025

THE CITY OF PEMBROKE PINES
PROCUREMENT DEPARTMENT
8300 SOUTH PALM DRIVE
PEMBROKE PINES, FLORIDA 33025
(954) 518-9020

For more information, please visit our online supplier portal, located at
https://procurement.opengov.com/portal/pembrokepines

Table of Contents

1. NOTICE
2. GENERAL PROJECT INFORMATION & TIMELINE
3. PURPOSE AND BACKGROUND
4. SCOPE OF WORK
5. PRICE PROPOSAL / BID TABLE
6. SUBMITTAL DOCUMENTS
7. EVALUATION OF PROPOSALS & PROCESS SELECTION
8. INSURANCE REQUIREMENTS
9. GENERAL TERMS AND CONDITIONS
10. SPECIAL TERMS & CONDITIONS
11. LOCAL, STATE, AND FEDERAL COMPLIANCE REQUIREMENTS

Attachments:

A - Standard Release of Lien

B - Specimen Contract - Construction Agreement

C - Sample Insurance Certificate

D - Cooling Tower Specifications

E - Cooling Tower Instructions

SECTION 1 - NOTICE

Notice is hereby given that the City Commission of the City of Pembroke Pines is seeking sealed proposals for:

IFB # PSPW-25-10

Academic Village Cooling Tower

Solicitations may be found on the City of Pembroke Pines website under the Procurement Department at http://www.ppines.com/index.aspx?NID=667, and may be downloaded directly from the OpenGov platform at https://procurement.opengov.com/portal/pembrokepines.

For Technical Support, proposers can reach the OpenGov Service Desk between 7:00 am to 10:00 pm from Monday through Friday via the following methods:

- Chat (preferred method): Click the button in the lower right-hand corner of the portal.
- E-mail: procurement-support@opengov.com
- Phone: 1 (650) 336-7167

If additional help is needed with downloading the solicitation package please contact the Procurement Department at (954) 518-9020 or by email at purchasing@ppines.com. The Procurement Department hours are between 7:00 am to 6:00 pm on Monday through Thursday and is located at 8300 South Palm Drive, Pembroke Pines, FL 33025.

Bidders shall submit all questions regarding this bid via the City's e-Procurement Portal, located at https://procurement.opengov.com/portal/pembrokepines. Please note the deadline for submitting questions. All answers will be posted on the City's e-Procurement Portal. Bidders may also click "Follow" on this bid to receive an email notification when answers are posted. It is the bidder's responsibility to check the portal for updates. Only written responses issued through the OpenGov platform will be considered official for interpretations or clarifications.

Proposals will be accepted until 2:00 pm on Tuesday, July 29, 2025, electronically at https://procurement.opengov.com/portal/pembrokepines/projects/175682.

Bid Opening: The sealed electronic proposals will be publicly opened at 2:30 pm, on the bid due date, by the City Clerk's Office, in the **City Clerk's Office Conference Room located on the 4th Floor in the Charles F. Dodge City Center/**City Hall Administration Building, located at 601 City Center Way, Pembroke Pines, Florida, 33025.

Virtual Bid Opening: In light of public health concerns and to ensure accessibility for all, the City encourages interested parties and the public to participate virtually via live streaming instead of attending the meeting in person. As a result, meetings may be a combination of in-person and virtual, all as provided by law. To virtually attend the bid opening, please use the Cisco Webex Meetings platform.

Virtual Meeting Details:

- WebEx Meeting Link: https://ppines.webex.com/meet/purchasing
- Cisco Webex Meeting Number: 717 019 586
- Join by Phone Number: +1-408-418-9388

The public may download the **Cisco Webex Meetings app** from https://www.webex.com/downloads.html/.

To ensure an efficient meeting process, participants are requested to mute their audio and camera during the meeting. While the public is welcome to attend the virtual bid opening, **please note that active participation and commenting will not be allowed during the proceedings.**

For further information about the bid opening or assistance in accessing the virtual meeting, please contact:

Nicolas Rodriguez or other Procurement Staff in the Procurement Department
City of Pembroke Pines
8300 South Palm Drive,
Pembroke Pines, FL 33025
(954) 518-9020 Ext: 59021 or 954-518-9020
purchasing@ppines.com

SECTION 2 - GENERAL PROJECT INFORMATION & TIMELINE

2.1 Project Timeline

The work shall be completed within **75 Days** calendar days from issuance of the City's Notice to Proceed (NTP), with an estimated start date of **TBD**.

2.2 Tentative Schedule of Events

Issuance of Solicitation (Posting Date):	June 24, 2025
Pre-Bid Meeting (Mandatory):	June 30, 2025, 2:00pm Pembroke Pines Charter School, Academic Village Campus 17189 Sheridan Street, Pembroke Pines, FL 33331
Question Due Date:	July 15, 2025, 11:00pm
Issuance of Final Answers to Questions:	July 21, 2025
Bid Submission Deadline:	July 29, 2025, 2:00pm
Bid Opening:	Will be held at 2:30 pm on the day of bid submissions are due.
Evaluations by Staff:	To Be Determined (TBD)

2.3 Mandatory Pre-Bid Meeting/Site Visit

There will be a **MANDATORY** scheduled pre-bid meeting on **Monday, June 30, 2025 at 2:00 pm.** Meeting location will be at the **Pembroke Pines Charter School, Academic Village Campus 17189 Sheridan Street, Pembroke Pines, FL 33331**

A. **Proof of Attendance: Contractor**s may be required to sign in at any of the meetings to show proof of attendance. It is the Contractor's responsibility to make sure that they sign in at the meeting.

2.4 Follow-Up Pre-Bid Meeting(s)

Follow-Up Meetings: In the event that a Contractor cannot attend the scheduled pre-bid meeting, or if a Contractor would like a follow up visit to the site, they may request a site visit by contacting **Nicolas Rodriguez** at **(954) 518-9020 Ext: 59021**. We urge all Contractors to attend the scheduled meeting, as a separate or follow-up meeting may not be afforded to the requester due to scheduling and availability of staff to assist with any additional meetings. In addition, if making a

request for a separate or follow-up meeting, Contractors are urged to make these requests as early as possible.

2.5 Estimated Project Cost

Staff estimates this project to cost approximately $448,000.

2.6 Liquidated Damages

Liquidated damages for this project shall be **FIVE HUNDRED DOLLARS AND NO CENTS ($500.00)** per day.

2.7 Grant/Federal Funding

Yes, the City plans to utilize the following grant(s)/federal fund(s) for this project:

U.S. Department of Energy (DOE) - Energy Efficiency & Conservation Grant Program (EECG)

2.8 Proposal Security/Bid Bond

A Proposal Security shall be required for every bidder, regardless of proposal amount. Proposal Security shall be in the amount of $10,000 or 5% of the total cumulative base amount proposed, whichever is less.

2.9 Payment and Performance Bonds

In the event that the awarded contract, not including owner's contingency, exceeds $200,000, two (2) separate bonds (Payment & Performance Bonds) are required, and both must be approved by the City. The penal sum stated in each bond shall be 100% of the contract price.

2.10 Permit, License, Impact or Inspection Fees

With the exception of the City related permit, license, impact or inspection fees (including the Building Department and Engineering Department Permit Fees), which will be waived for this project, the City does not anticipate any additional permit, license, impact or inspection fees for this project. Any related State or County fees, for the aforementioned permits, will be paid by the City.

In addition, the City shall cover the cost for any other permit fees related to external entities through the City's Owner's Contingency for this project**, therefore proposers should not include permit costs in their total proposal price.**

Furthermore, please note the City's average time for a Contractor to apply for and receive an approved permit is 30 days; delays in this timeline caused by the Contractor's failure to actively monitor the permit process and submit all required documentation in a timely manner, will count against the project's contractual completion period.

SECTION 3 - PURPOSE AND BACKGROUND

3.1 Purpose

The City of Pembroke Pines is seeking bids from qualified firms, hereinafter referred to as the Contractor, to furnish all labor, equipment, and materials, for the demolition and installation of a new cooling tower at the Pembroke Pines Charter School Academic Village Campus, in accordance with the terms, conditions, and specifications contained in this solicitation.

Cooling towers play a critical role in the HVAC system by removing heat from the building and maintaining efficient system operation. Their proper function is essential to ensure continuous cooling across the campus and prevent disruptions to the HVAC infrastructure.

The Pembroke Pines Academic Village campus cooling towers have reached the end of their useful life due to corrosion and aging components, impacting performance and reliability. Replacing them with modern stainless-steel units will enhance efficiency, ensure safety, and provide dependable service for decades with proper maintenance.

3.2 Background

Pembroke Pines, Florida, ranked as the eleventh largest city among the state's four hundred plus municipalities and the second largest in Broward County, maintains a welcoming small-town ambiance that resonates with its residents. Located conveniently in southwest Broward County, the city provides seamless access to major highways, employment centers, entertainment venues, parks, golf courses, and a diverse array of dining and shopping options.

With a population of approximately 170,000 residents spread across 32.68 square miles, Pembroke Pines is renowned as one of the best cities to live in America. The city boasts 28 superior parks, lush landscaping, and a distinctive South Florida charm that contributes to its natural beauty. Notably recognized as 2024's Best Place to Raise a Family in Florida, and 2024's Best City of Hispanic Entrepreneurs by WalletHub, Pembroke Pines also earned a place as the on Money Magazine's esteemed Best Places to Live list in 2014, as the sole Florida representative, ranking in at #32 in the nation.

Incorporated in 1960, Pembroke Pines is celebrated as a safe and desirable community, having received accolades such as the All-America City designation. The city's commitment to arts and culture, exceptional schools, diverse population, numerous parks, and forward-thinking approach in an ever-evolving world make it a standout destination.

Pembroke Pines is also the home to the largest municipal-run charter school system in the nation, serving over 6,000 students across five separate campuses. The City’s award-winning charter school system is located in the Broward County School District, which is the sixth largest school district in the nation.

SECTION 4 - SCOPE OF WORK

4.1 General Requirements

- A licensed General Contractor with a minimum of five (5) years of experience is required for this project.
- The City provides permit-ready plans. All other documents, plans, submittals, special inspections, and required certificates (including NOA's for permits) are the contractor's responsibility.
- The contractor is responsible for acquiring all necessary permits, performing testing, and ensuring manufacturer and contractor warranties and certifications are provided.
- The contractor must provide weekly progress updates and submit fire sprinkler shop drawings for permit review and approval by the Authority Having Jurisdiction (AHJ).
- All work must comply with governing code requirements.
- Background checks will be required for school access.
- A competent, English-speaking superintendent must be present on-site during the work. All decisions made by the superintendent are binding.
- The contractor must ensure all debris is removed and areas damaged during construction are restored to their original or better condition.
- The site must be made safe in accordance with OSHA standards, and all debris must be cleaned up at the end of each workday
- Precautions must be taken to ensure the safety of people, vehicles, and structures on the site.
- Temporary fencing, landscaping, concrete, and other necessary items may need to be removed or reinstalled for access.
- The contractor may set up temporary containers for storage.

4.2 Demolition

- Coordinate timing and logistics with the Facility Management the time frame and schedule available for system shut down.
- Disconnect existing condenser water supply and return piping at a location near the building wall.
- Disconnect existing make up water piping at a point upstream of the existing water meter and ahead of the existing shut off valve.

- Remove all existing drain and overflow piping.
- Remove all existing sump equalization piping.
- Disconnect all existing electrical wiring serving cooling tower motors.
- Remove the cooling tower fan motors and return these to the facility manager.
- Remove existing cooling towers and leave the space open and ready to accept the new equipment. Contractor is responsible for all necessary crane service, rigging, transport of towers to disposal site, and disposal fees.

4.3 Equipment

Please refer to attachment D: Cooling Tower Specifications and attachment E: Cooling Tower Instructions for the specifications of the requested unit.

4.4 New Installation

- The mechanical contractor will be responsible for all necessary crane services, rigging, and transport of new cooling towers to the project. Delivery of the new cooling towers is to be closely coordinated with the facility manager.
- The mechanical contractor is responsible for all permitting of the new work. This includes permit fees and processing.
- See attached document for specifications of new cooling towers. All accessories listed are to provided in addition to new variable frequency drives and motor shaft grounding rings for the two new motors.
- Existing concrete structure is to be re-used including any necessary structural modifications as indicated in the structural engineering drawings. New cooling towers are heavier than the existing ones due to higher wind load resistance.
- New cooling towers are to be placed on the concrete structure in similar fashion to existing. Cooling tower footprint will not change.
- Existing condenser water pumps, located adjacent to the cooling towers, will remain for continued use.
- Provide new condenser water return piping starting at the building wall. Provide new piping appurtenances in return piping including shut off valves, balancing valves, and flexible connectors for each tower inlet connection.
- Existing condenser water supply piping is to remain for continued use. Existing appurtenances in condenser water supply piping are to remain for continued use.

- Provide new 4” cooling tower drain, 4” overflow, and 12” sump equalizing piping. Provide new isolation valve in sump equalizing piping.
- Provide new 1” type “L” copper make up water piping to each cooling tower. Provide new shut off valves and flex connectors accordingly.
- Install new variable frequency drives inside the existing mechanical room in location coordinated with facility manager. Provide all load and line side wiring and conduit as required.
- Cooling tower fan speed is to be controlled based on sump temperature. Provide new temperature sensors and necessary interconnection of these and new VFDs to existing TRANE building management system.

4.5 Repairs

- Any damage to walls, floors, or other areas affected by construction must be repaired to their original or better condition.

SECTION 5 - PRICE PROPOSAL / BID TABLE

The vendor must provide their pricing electronically through the designated line items listed on the Bid Sheet/Pricing Table via the City's e-Procurement portal on OpenGov.

Vendor Notes: The bid tables include a "Vendor Notes" column for any additional comments regarding the requested line item(s). A comment is preferred in the "Vendor Notes" column. If the vendor does not need to submit any comments, they may leave it blank or enter N/A or similar.

Payment & Performance Bonds: The table includes a section for the vendor to submit pricing for Payment & Performance Bonds. If the total cumulative base proposal amount does not exceed $200,000 and a Payment and Performance Bond is not required, please enter "0" on the "If Applicable, Cost for Payment and Performance Bond" column for each line item.

Primary Responses: The initial Bid Table is for the primary responses so that the vendors can submit the requested goods and/or services.

Additional Responses: The second Bid Table allows for bidders to submit alternative options. Substitutions of brands or products must be submitted as an alternative for the City's review and approval.

A. To submit an alternative, please clearly identify any brand or product substitutions in the **"Vendor Notes"** column for the respective part.

B. In addition, please upload any pertinent information relating to the alternative in the "Alternatives" section of the SUBMITTAL DOCUMENTS.

PRIMARY RESPONSE

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Vendor Notes
1-1	Lump Sum Cost for Turnkey Demolition & Installation	1	Lump Sum			
TOTAL						

ALTERNATE RESPONSE

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Vendor Notes
2-1	Lump Sum Cost for Turnkey Demolition & Installation (Alternate)	1	Lump Sum			

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Vendor Notes
TOTAL						

PAYMENT & PERFORMANCE BOND

Line Item	Description	Unit of Measure	Percentage
3-1	Cost to provide a Payment & Performance Bond for the project, in the form of a percent	Percent	

SECTION 6 - SUBMITTAL DOCUMENTS

Bids must be submitted electronically at https://procurement.opengov.com/portal/pembrokepines on or before **2:00 pm on Tuesday, July 29, 2025.** Please note vendors should be registered on OpenGov under the name of the organization that they are operating as and it should match the organization name on the documents that they are submitting and utilizing when responding to the solicitation. In addition, the vendor must complete the required documents in this section and provide any additional information requested throughout this solicitation. Any additional information requested in the solicitation should be scanned and uploaded. The City recommends for proposers to submit their proposals as soon as they are ready to do so. Please allow ample time to submit your proposals on the https://procurement.opengov.com/portal/pembrokepines website. Proposals may be modified or withdrawn prior to the deadline for submitting Proposals.

PLEASE DO NOT SUBMIT ANY PROPOSALS VIA MAIL, E-MAIL OR FAX.

Prospective proposers interested in responding to this solicitation are requested to provide all of the applicable information listed in this section. Submittals that do not respond completely to all of the requirements specified herein may be considered non-responsive and eliminated from the process. Brevity and clarity are encouraged.

1 CONFIRMATION TO BIND

1.1 I certify that I have read, understood and agree to the terms in this solicitation, and that I am authorized to submit this response on behalf of my company.*

☐ Please confirm

*Response required

2 CERTIFICATION OF INSURANCE COMPLIANCE AND INTENT TO PROCURE REQUIRED COVERAGE

NOTE: Vendors are not required to purchase any additional insurance in order to submit a bid. However, they must certify that they either currently hold, or are able and willing to obtain, all required insurance coverages, endorsements, and limits prior to award and execution of the contract.

2.1 I certify that, if awarded this contract, I will be required to obtain and maintain all insurance policies as detailed in the INSURANCE REQUIREMENTS Section of this solicitation before any work may commence, and throughout the life of the contract.*

☐ Please confirm

*Response required

2.2 Do you confirm that you will only use insurance carriers licensed to do business in the State of Florida and rated no less than “A” as to management, and no less than “Class VI” as to financial strength by A.M. Best, and that you understand all endorsements required (e.g., Additional Insured, Waiver of Subrogation, etc.) must be included?*

☐ Yes

☐ No

*Response required

2.3 Do you currently carry insurance policies that meet or exceed the minimum requirements outlined in the INSURANCE REQUIREMENTS section of this solicitation?*

☐ Yes

☐ No

*Response required

When equals "Yes"

2.3.1 Please upload your current certificate(s) of insurance that demonstrate compliance with the insurance requirements outlined in this solicitation.*
*Response required

When equals "No"

2.3.2 Please upload documentation showing that you have obtained a letter from your insurance broker or carrier, such as a Letter of Intent to Insure, Evidence of Insurability, or a Conditional Certificate of Insurance.*
Documentation should show that:

- You can obtain the required insurance.
- The limits and types of coverage will meet the INSURANCE REQUIREMENTS outlined in the solicitation.
- You will provide a COI upon contract award.

*Response required

When equals "No"

2.3.3 Please upload your current certificate(s) of insurance.*
*Response required

2.4 Do you believe you are exempt from one or more insurance requirements (e.g., Workers' Compensation)?*

☐ Yes

☐ No

*Response required

When equals "Yes"

2.4.1 Please upload written documentation requesting an exemption on your company letterhead, subject to City approval.*
*Response required

2.5 Do you plan on using subcontractors for this project?*

☐ Yes

☐ No

*Response required

When equals "Yes"

2.5.1 Do you acknowledge that all subcontractors must also carry the same insurance or be covered under your policy, and that proof of such coverage must be provided to the City?*

☐ Yes

☐ No

*Response required

3 REFERENCE # 1

The minimum experience for this project is **five (5) years**. Provide specific examples of similar experience conducting licensed work of equal or similar scope of work, preferably delivered by the proposed team members. A **minimum of 3** references should be from the last **five years** and should be capable of explaining and confirming your firm's capacity to successfully complete the scope of work outlined herein. As part of the proposal evaluation process, the City may conduct an investigation of references, including a record check or consumer affairs complaints. Proposers' submission of a proposal constitutes acknowledgment of the process and consent to investigate. The City is the sole judge in determining Proposers qualifications. In this section you will have the ability to enter information for 5 different references including their contact details and specific project information.

Please note that the City prefers references who are not current employees of the City of Pembroke Pines, as we generally do not contact our own employees for reference checks.

Proposers are advised to confirm that:

A. Each reference provided by the Respondent has up to date contact persons and contact information;

B. The contact person provided for each reference is someone who has personal knowledge of the Proposer's performance during the referenced project; and

C. The contact person for each reference has been contacted by the Proposer regarding this specific bid submittal and such person confirmed their willingness to serve as a reference.

3.1 Reference Contact Information - Name of Firm, City, County or Agency*
*Response required

3.2 Reference Contact Information - Reference's Business Address*
*Response required

3.3 Reference Contact Information - Reference's Contact Name & Title*
*Response required

3.4 Reference Contact Information - Reference's E-mail Address*
*Response required

3.5 Reference Contact Information - Reference's Phone Number*
*Response required

3.6 Project Information - Was your firm the prime contractor for the listed project?*
☐ Yes
☐ No

*Response required

3.7 Project Information - Name of Contactor Performing the Work*
*Response required

3.8 Project Information - Name and location of the project*
*Response required

3.9 Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for*
*Response required

3.10 Project Information - Project Duration*
*Response required

3.11 Project Information - Completion (Anticipated) Date*
*Response required

3.12 Project Information - Size of Project*
*Response required

3.13 Project Information - Cost of Project*
*Response required

4 REFERENCE # 2

4.1 Reference Contact Information - Name of Firm, City, County or Agency*
*Response required

4.2 Reference Contact Information - Reference's Business Address*
*Response required

4.3 Reference Contact Information - Reference's Contact Name & Title*
*Response required

4.4 Reference Contact Information - Reference's E-mail Address*
*Response required

4.5 Reference Contact Information - Reference's Phone Number*
*Response required

4.6 Project Information - Was your firm the prime contractor for the listed project?*

☐ Yes

☐ No

*Response required

4.7 Project Information - Name of Contactor Performing the Work*
*Response required

4.8 Project Information - Name and location of the project*
*Response required

4.9 Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for*
*Response required

4.10 Project Information - Project Duration*
*Response required

4.11 Project Information - Completion (Anticipated) Date*
*Response required

4.12 Project Information - Size of Project*
*Response required

4.13 Project Information - Cost of Project*
*Response required

5 REFERENCE # 3

5.1 Reference Contact Information - Name of Firm, City, County or Agency*
*Response required

5.2 Reference Contact Information - Reference's Business Address*
*Response required

5.3 Reference Contact Information - Reference's Contact Name & Title*
*Response required

5.4 Reference Contact Information - Reference's E-mail Address*
*Response required

5.5 Reference Contact Information - Reference's Phone Number*
*Response required

5.6 Project Information - Was your firm the prime contractor for the listed project?*

☐ Yes

☐ No

*Response required

5.7 Project Information - Name of Contactor Performing the Work*
*Response required

5.8 Project Information - Name and location of the project*
*Response required

5.9 Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for*
*Response required

5.10 Project Information - Project Duration*
*Response required

5.11 Project Information - Completion (Anticipated) Date*
*Response required

5.12 Project Information - Size of Project*
*Response required

5.13 Project Information - Cost of Project*
*Response required

6 REFERENCE # 4

6.1 Reference Contact Information - Name of Firm, City, County or Agency
6.2 Reference Contact Information - Reference's Business Address
6.3 Reference Contact Information - Reference's Contact Name & Title
6.4 Reference Contact Information - Reference's E-mail Address
6.5 Reference Contact Information - Reference's Phone Number
6.6 Project Information - Was your firm the prime contractor for the listed project?
☐ Yes
☐ No

6.7 Project Information - Name of Contactor Performing the Work
6.8 Project Information - Name and location of the project
6.9 Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for
6.10 Project Information - Project Duration
6.11 Project Information - Completion (Anticipated) Date
6.12 Project Information - Size of Project
6.13 Project Information - Cost of Project

7 REFERENCE # 5

7.1 Reference Contact Information - Name of Firm, City, County or Agency
7.2 Reference Contact Information - Reference's Business Address
7.3 Reference Contact Information - Reference's Contact Name & Title
7.4 Reference Contact Information - Reference's E-mail Address
7.5 Reference Contact Information - Reference's Phone Number
7.6 Project Information - Was your firm the prime contractor for the listed project?

☐ Yes
☐ No

7.7 Project Information - Name of Contactor Performing the Work
7.8 Project Information - Name and location of the project
7.9 Project Information - Nature of the firm's responsibility on the project and work for which staff was responsible for
7.10 Project Information - Project Duration
7.11 Project Information - Completion (Anticipated) Date
7.12 Project Information - Size of Project
7.13 Project Information - Cost of Project

8 PROJECT DOCUMENTS

8.1 PROPOSERS BACKGROUND INFORMATION FORM*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Proposers_Background_Inform...

*Response required

8.2 PROPOSAL SECURITY (BID BOND FORM OR CASHIER'S CHECK)*

a. A Proposal Security shall be in the amount of **$10,000 or 5% of the total cumulative base amount proposed, whichever is less**.

b. Therefore, proposal should be accompanied by a certified or cashier’s check or by a Bid Bond made payable to the City of Pembroke Pines on an approved form, duly executed by the Proposer as principal and having as surety thereon a surety company acceptable to CITY and authorized to write such Bond under the laws of the State of Florida.

c. Contingency is not to be counted in the total amount the proposal security is based on.

d. Proposers must submit a scanned copy of their bid security (bid bond form or cashier's check) with their bid submittal through OpenGov.

e. Proposers should also submit their original bid security (bid bond form or cashier’s check) at time of the bid due date, or they may be deemed as non-responsive.

f. The original Bid Bond or Cashier's Check should be in a sealed envelope, plainly marked "**BID SECURITY - PSPW-25-10 Academic Village Cooling Tower** and sent to the City of Pembroke Pines, City Clerk's Office, 4th Floor, 601 City Center Way, Pembroke Pines, Florida, 33025.

g. Please see SPECIAL TERMS & CONDITIONS of this document for additional information.

*Response required

9 SWORN STATEMENT ON PUBLIC ENTITY CRIMES UNDER FLORIDA STATUTES CHAPTER 287.133(3)(a)

9.1 SWORN STATEMENT ON PUBLIC ENTITY CRIMES FORM*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Sworn_Statement_on_Public_E...

*Response required

9.2 Public Entity Crimes Status*

- Which option did you select on the Sworn Statement on Public Entity Crimes Form:

  - A) Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

  - B1) The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

  - B2) The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hear¬ings. The final order entered by the hearing

officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

- B3) The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND The person or affiliate has not been placed on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

☐ A) No convictions.
☐ B1) Convicted, final order did not place on the convicted vendor list.
☐ B2) Convicted, listed, then removed.
☐ B3) Convicted, not listed, action pending.
*Response required

9.3 Did you select option B1 or B2 above?*
☐ Yes
☐ No

*Response required

When equals "Yes"

9.3.1 Please upload a copy of the final order issued by the hearing officer of the State of Florida, Division of Administrative Hearings.*
*Response required

9.4 Did you select option B3 above?*
☐ Yes
☐ No

*Response required

When equals "Yes"

9.4.1 Please describe any action taken by or pending with the Department of General Services.*
*Response required

10 EQUAL BENEFITS CERTIFICATION FOR DOMESTIC PARTNERS AND ALL MARRIED COUPLES

10.1 EQUAL BENEFITS CERTIFICATION FORM*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Equal_Benefits_Certificatio...

*Response required

10.2 Equal Benefits Status*

- Which option did you select on the Equal Benefits Certification Form:
  - A. Contractor currently complies with the requirements of this section; or
  - B. Contractor will comply with the conditions of this section at the time of contract award; or
  - C. Contractor will not comply with the conditions of this section at the time of contract award: or
  - D. Contractor does not comply with the conditions of this section because of the following allowable exemption (Check only one box below):
    - 1. The Contractor does not provide benefits to employees' spouses in traditional marriages;
    - 2. The Contractor provides an employee the cash equivalent of benefits because the Contractor is unable to provide benefits to employees' Domestic Partners or spouses despite making reasonable efforts to provide them. To meet this exception, the Contractor shall provide a notarized affidavit that it has made reasonable efforts to provide such benefits. The affidavit shall state the efforts taken to provide such benefits and the amount of the cash equivalent. Cash equivalent means the amount of money paid to an employee with a Domestic Partner or spouse rather than providing benefits to the employee's Domestic Partner or spouse. The cash equivalent is equal to the employer's direct expense of providing benefits to an employee's spouse;
    - 3. The Contractor is a religious organization, association, society, or any non-profit charitable or educational institution or organization operated supervised or controlled by or in conjunction with a religious organization, association, or society;
    - 4. The Contractor is a governmental agency;

☐ A) Contractor currently complies.
☐ B) Will comply by contract award.
☐ C) Will not comply.
☐ D1) Does not comply due to an exemption: No spousal benefits for anyone.
☐ D2) Does not comply due to an exemption: Provides cash equivalent after trying.

☐ D3) Does not comply due to an exemption: Religious or related nonprofit.

☐ D4) Does not comply due to an exemption: Government agency.

*Response required

10.3 Did you select option D2 above?*

☐ Yes

☐ No

*Response required

When equals "Yes"

10.3.1 Please upload a notarized affidavit detailing the reasonable efforts made to provide benefits to employees' Domestic Partners or spouses, along with the amount of the cash equivalent provided.*

*Response required

11 DRUG-FREE WORKPLACE CERTIFICATION

11.1 VENDOR DRUG FREE WORKPLACE CERTIFICATION FORM*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Vendor_Drug-Free_Workplace_...

*Response required

11.2 Drug-Free Status*

☐ Complies fully.

☐ Does not comply.

*Response required

12 STANDARD DOCUMENTS

The following documents are standard documents that the City generally requires for every solicitation. As a result, we recommend vendors to keep these documents updated and readily available so that they can be easily uploaded for each project that the vendor would like to participate in. In the event that the City does not have one of the forms or documents listed below for your company, the City may reach out to your company after the bid has closed to obtain the document(s).

12.1 NON-COLLUSIVE AFFIDAVIT*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Non-Collusive_Affidavit.pdf

*Response required

12.2 SCRUTINIZED COMPANY CERTIFICATION*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Scrutinized_Company_Certifi...

*Response required

12.3 E-VERIFY SYSTEM CERTIFICATION*

a. Please download the attached document, complete all required fields, and upload the completed form here.

b. Effective January 1, 2021, pursuant to Section 448.095. Florida Statues, the City may not enter into a contract with a vendor/contractor/subcontractor unless that vendor/contractor/subcontractor is registered with and uses the E- Verify system administered by the U.S. Department of Homeland Security ("DHS").

c. Contractor shall also require all subcontractors to provide an affidavit attesting that the subcontractor does not employ, contract with, or subcontract with, an unauthorized alien. The Contractor shall maintain a copy of such affidavit for the duration of the contract.

- E-Verify_System_Certificati...

*Response required

12.4 HUMAN TRAFFICKING AFFIDAVIT*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Human_Trafficking_Affidavit...

*Response required

13 VENDOR REGISTRATION

13.1 Do you currently have a City of Pembroke Pines Vendor Number registered in the PaymentWorks System?*

- The City of Pembroke Pines utilizes OpenGov as its e-Procurement platform for solicitation and bid submission purposes. However, please be advised that **vendor registration for onboarding and processing payments is handled separately** through the City's Accounts Payable Division using **PaymentWorks**, a secure online vendor management platform.

- All vendors that will be submitting invoices and requiring payments from the City are required to register on the PaymentWorks platform. If the vendor is not currently

registered with the City via PaymentWorks and does not have a Vendor Number, the City will have to invite the vendor to register.

- For formal solicitations such as this project, the Procurement Department will send PaymentWorks registration invitations to vendor(s) who are under active consideration for award. Please be aware that not all vendors who submit proposals will receive an invitation, in order to manage system usage and avoid onboarding vendors who are unlikely to receive payments from the City.
- Invitations will typically be sent to the contact listed on the submitted Vendor Information Form.

☐ Yes
☐ No

*Response required

When equals "Yes"

13.1.1 What is your Vendor Number?*
*Response required

13.2 VENDOR INFORMATION FORM*

a. Please download the attached document, complete all required fields, and upload the completed form here.

- Vendor_Information_Form.pdf

*Response required

13.3 FORM W-9 (REVISED MARCH 2024)*

a. Please download the attached document, complete all required fields, and upload the completed form here.

b. Note - Please use the March 2024 version of the form as previously dated versions of this form may delay the processing of any payments to the selected vendor.

- Form_W-9_(Rev_March_2024).pdf

*Response required

14 OPTIONAL DOCUMENTATION

14.1 TRADE SECRETS

a. The Proposer's response to this solicitation is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters or other material submitted in

connection with this solicitation and the Contract to be executed for this solicitation, subject to the provisions of Chapter 119.07 of the Florida Statutes.

b. Any language contained in the Proposer's response to the solicitation purporting to require confidentiality of any portion of the Proposer's response to the solicitation, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the solicitation constitutes a Trade Secret.

c. EXCEPT FOR CLEARLY MARKED PORTIONS THAT ARE BONA FIDE TRADE SECRETS PURSUANT TO FLORIDA LAW, DO NOT MARK YOUR RESPONSE TO THE SOLICITATION AS PROPRIETARY OR CONFIDENTIAL. DO NOT MARK YOUR RESPONSE TO THE SOLICITATION OR ANY PART THEREOF AS COPYRIGHTED. ALL DOCUMENTS THAT THE FIRM PURPORTS TO BE CONFIDENTIAL, PROPRIETARY OR A TRADE SECRET SHALL BE UPLOADED TO THE OPENGOV WEBSITE AS A SEPARATE ATTACHMENT, IN THIS SECTION, CLEARLY IDENTIFYING THE EXEMPTION BEING CLAIMED UNDER FLORIDA STATUTES 119.07.

d. The city's determination of whether an exemption applies shall be final, and the proposer agrees to defend, indemnify, and hold harmless the city and the city's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the city's treatment of records as public records.

14.2 FINANCIAL STATEMENTS

a. The City is **NOT** requesting the vendor to submit any financial statements for this project and prefers if the vendor does not submit financial statements. In addition, if the City needs a copy of the vendor's financial statements, the City can contact the vendor after the bid due date to request those documents. However, if the vendor does submit the financial statements, they should be uploaded in this section.

b. Any claim of confidentiality on financial statements must be asserted at the time of submittal. The firm must identify the specific statute that authorizes the exemption from the Public Records Law. Please note that the financial statement exemption

provided for in Section 119.071(1)c, Florida Statutes only applies to submittals in response to a solicitation for a "public works" project.

14.3 ALTERNATIVES

a. If you are submitting an alternative product, please upload any related information in this section (such as specification sheets, etc.).

b. In addition, pursuant to the **"Brand Names"** Section included in the GENERAL TERMS AND CONDITIONS Section if and wherever in the specifications a brand name, make, name of manufacturer, trade name, or vendor catalog number is mentioned, it is for the purpose of establishing a grade or quality of material only. Since the City does not wish to rule out other competition and equal brands or makes, the phrase "OR EQUAL" is added. However, if a product other than that specified is bid, Proposers shall indicate on their proposal and clearly state the proposed substitution and deviation. It is the vendor's responsibility to provide any necessary documentation and samples within their bid submittal to prove that the product is equal to that specified. Such samples are to be furnished before the date of bid opening, unless otherwise specified. Additional evidence in the form of documentation and samples may be requested if the proposed brand is other than that specified. The City retains the right to determine if the proposed brand shall be considered as an approved equivalent or not.

14.4 ADDITIONAL INFORMATION

a. Please provide any additional information that you deem necessary to complete your proposal in this section, if it has not been requested in another section.

14.5 PROFESSIONAL LICENSES

a. If applicable, please upload any professional licenses that may be required to perform the services outlined in the solicitation. The following licensing requirements shall apply when the applicable Florida statute mandates specific licensing for Contractors engaged in the type of work covered by this solicitation.

1. State of Florida, Department of Professional Regulation, Construction Industries Licensing Board and licensed by other federal, state, regional, county or municipal agencies having jurisdiction over the specified construction work.

2. Said licenses shall be in the Firm's name as it appears on the OpenGov registration and as appropriately registered with the applicable licensing entity. Proposer shall supply appropriate license numbers, with expiration dates, as part of their bid. Failure to hold and provide proof of proper licensing, certification and registration may be grounds for rejection of the bid.

3. Subcontractors contracted by the Prime Contractor shall be licensed in their respective fields to obtain construction permits as necessary. Said licenses must be in the name of the subcontractor.

15 VENDOR CLASSIFICATION

15.1 Is your firm a Veteran Owned Small Business (VOSB)?*

a. The evaluation of competitive bids is subject to section 35.37 of the City's Procurement Procedures which, except where contrary to federal and state law, or any other funding source requirements, provides that preference be given to veteran owned small businesses. To satisfy this requirement, the vendor shall affirm in writing its compliance with the following objective criteria as of the bid or proposal submission date stated in the solicitation.

b. A preference of two and a half percent (2.5%) of the total evaluation point, or two and a half percent (2.5%) of the total price, shall be given to the Veteran Owned Small Business (VOSB).

☐ Yes
☐ No

*Response required

When equals "Yes"

15.1.1 Upload the "Determination Letter" from the United States Department of Veteran Affairs Center notifying the business that they have been approved as a Veteran Owned Small Business (VOSB)

When equals "Yes"

15.1.2 Upload Veteran Owned Small Business Certification(s) from any relevant agency(ies)

15.2 Is your firm a Minority-Owned Business Enterprise (MBE)?*

☐ Yes
☐ No

*Response required

When equals "Yes"

15.2.1 Please indicate the classification of your Minority-Owned Business Enterprise (MBE)*
Select all that apply

☐ African-American MBE
☐ Asian-American MBE
☐ Hispanic-American MBE
☐ Native-American MBE

☐ Other option not listed above

*Response required

When equals "Yes"

15.2.2 MBE Certification Documentation*

1. Upload your MBE Certification Documentation here, preferably with the State of Florida's Office of Supplier Diversity. If you have multiple MBE certifications, please combine them into one (1) document and upload.

*Response required

15.3 Is your firm a Woman-Owned Business Enterprise (WBE)?*

☐ Yes

☐ No

*Response required

When equals "Yes"

15.3.1 WMBE Certification Documentation*

1. Upload your WMBE Certification Documentation here, preferably with the State of Florida's Office of Supplier Diversity. If you have multiple WMBE certifications, please combine them into one (1) document and upload.

*Response required

15.4 Is your firm a HubZone Business / Labor Surplus Area Firm?*

☐ Yes

☐ No

*Response required

When equals "Yes"

15.4.1 HubZone Business / Labor Surplus Area Firm Certification Documentation*

1. Upload your HubZone Business / Labor Surplus Area Firm Certification Documentation, preferably with the U.S. Small Business Administration (SBA). If you have multiple certifications, please combine them into one (1) document and upload.

*Response required

15.5 Is your firm a Broward County Small Business Enterprise (SBE)?*

☐ Yes

☐ No

*Response required

When equals "Yes"

15.5.1 SBE Cerification Documentation*

1. Upload your SBE Certification Documentation from Broward County's Office of Economic and Small Business Development (OESBD). If you have multiple certifications, please combine them into one (1) document and upload.

*Response required

15.6 Is your firm a Broward County Business Enterprise (CBE)?*

☐ Yes

☐ No

*Response required

When equals "Yes"

15.6.1 CBE Certification Documentation*

1. Upload your CBE Certification Documentation from Broward County's Office of Economic and Small Business Development (OESBD). If you have multiple certifications, please combine them into one (1) document and upload.

*Response required

15.7 Is your firm a Broward County Disadvantaged Business Enterprise (DBE)?*

☐ Yes

☐ No

*Response required

When equals "Yes"

15.7.1 DBE Certification Documentation*

1. Upload your DBE Certification Documentation from Broward County's Office of Economic and Small Business Development (OESBD). If you have multiple certifications, please combine them into one (1) document and upload.

*Response required

15.8 Does your firm have a Vendor Classification that was not listed above?*

☐ Yes

☐ No

*Response required

When equals "Yes"

15.8.1 Other Vendor Classification Certification Documentation*

1. Upload your other Certification Documentation here. If you have multiple certifications, please combine them into one (1) document and upload.

*Response required

16 FEDERAL DOCUMENTS

16.1 Certification Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters for Expenditure of Federal Funds*

a. **Lobbying:**

1. As required by 7 CFR Part 3018, for persons entering into a contract, grant or cooperative agreement over **$100,000** involving the expenditure of Federal funds, the Contractor must complete the **Certification Regarding Lobbying**.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress, in connection with this Federal contract, grant, loan, or cooperative agreement, the Contractor shall also complete and submit the **Standard Form - LLL, "Disclosure Form to Report Lobbying,"** in accordance with its instructions.

b. **Debarment, Suspension and Other Responsibility Matters:**

1. Where the Contractor is unable to certify to any of the statements in the certification for **Debarment, Suspension and Other Responsibility Matters**, he or she shall **provide an explanation**.

- Please download the below documents, complete, and upload.

- Federal_Certification_for_L...

*Response required

16.2 Are you currently registered as an active entity on SAM.gov (System for Award Management)?*

a. All vendors submitting bids for this project must be registered and active in the System for Award Management (SAM.gov) at the time of bid award. This is a federal requirement for entities receiving federal funds, including contracts, grants, or other financial assistance. Registration on SAM.gov ensures that vendors are eligible to do business with the U.S. government and are not suspended, debarred, or otherwise excluded from participation in federal programs. SAM registration is free and can be completed at https://sam.gov. Bidders must provide their Unique Entity ID (UEI) and proof of active registration as part of their proposal.

☐ Yes
☐ No

*Response required

When equals "Yes"

16.2.1 If yes, please provide your Unique Entity ID (UEI)*
*Response required

When equals "Yes"

16.2.2 What is the expiration date of your current SAM.gov registration? (MM/DD/YYYY)*
*Response required

When equals "Yes"

16.2.3 Proof of Registration Upload*

1. Please upload a PDF copy or screenshot of your entity's active registration status from SAM.gov that includes:

   A. Entity Name

   B. Unique Entity ID (UEI)

   C. DUNS (if applicable)

   D. Registration Status ("Active")

   E. Expiration Date

2. *This document must be downloaded from https://sam.gov and must show the current status at the time of bid submission.*

*Response required

16.3 Debarment Status - Is your entity currently debarred, suspended, or otherwise excluded from receiving federal contracts or financial assistance?*

☐ Yes

☐ No

*Response required

When equals "Yes"

16.3.1 If yes, please provide an explanation.*
*Response required

When equals "Yes"

16.3.2 If yes, please upload any relevant documentation, if applicable.

16.4 I certify that the information provided above is true and correct to the best of my knowledge. I understand that false or misleading statements may disqualify this bid and subject the entity to federal penalties.*

☐ Please confirm

*Response required

SECTION 7 - EVALUATION OF PROPOSALS & PROCESS SELECTION

7.1 Qualifying & Selecting Firms

A. Staff will evaluate all responsive proposals received from proposers who meet or exceed the bid requirements contained in the solicitation. Evaluations shall be based upon the information and references contained in the proposals as submitted.

B. Staff will make a recommendation to the City Commission for award of contract.

C. The contract shall be awarded to the most responsive/responsible bidder whose bid is determined to be the most advantageous to the City taking into consideration the evaluation criteria.

BALTIMORE AIRCOIL COMPANY

Submittal Data Package

Project:
Academic Village Cooling Tower Replacement

Customer:
Tom Barrow Co. - SFL

Representative:
Juan Gonzalez (NA - South)
jgonzalez@tombarrow.com

Series 3000 Cooling Tower
S3E-1222-06N-2/S

Background Information			
BAC Quote Number:	90609	**Line:**	100
Revision:	2	**Revision Name**:	Revision 2
Purchase Order No:			

The submittal document is as configured by your Sales Representative as of the date 3/4/2025. Please note any future changes may require a revised submittal package and updated drawings.

Table of Contents

Technical Datasheet 3
Sound Rating 5
Mechanical Specifications 6
Terms and Conditions of Sale 9
Submittal Data 11
Drawings And Diagrams 12
Unit Print 13
Unit Support 14
Center of Gravity 15
Basin Accessories 16
Motor Location 17
Space Heater Wiring 18
VCOS Location 19
VCOS Wiring 20
Internal Access 21
IBC Certificate 22

Technical Datasheet
Cooling Tower

Model Information

Product line ..... Series 3000 Cooling Tower
Model S3E-1222-06N-2/S

Main Accessories

Intake option ..... None
Discharge option ..... None

Thermal Design Data

Requested capacity (unit) ..... 12,245.10 MBH
Maximum capacity (unit) ..... 13,440.39 MBH
Reserve capacity ..... 9.54 %
Requested fluid flow ..... 1,750.00 gpm
Entering wet bulb temperature ..... 80.00 °F
Inlet temperature of process fluid ..... 99.00 °F
Outlet temperature of process fluid ..... 85.00 °F

Physical Data (per unit)

Overall length (not including all options and accessories) ..... 23' 10"
Overall width (not including all options and accessories) ..... 21' 7"
Overall height (not including all options or accessories) ..... 10' 11"
Shipping weight ..... 23,038 lbs
Operating weight ..... 47,598 lbs
Heaviest section ..... 11,519 lbs
Material option ..... JE PREMIER SERIES® Construction
Note: Exact unit dimensions and weights may be influenced by accessories/option combinations.

Wet Deck Surface

Wet deck surface material ..... PVC

Electrical Data (per unit)

Fan motor
- Quantity 2
- BHP (net mech output power at motor shaft) ..... 50.0 HP
- Fan motor power ..... (2) 25.0 = 50.0 HP/Unit
- Fan Drive System ..... BALTIDRIVE® Power Train
- Voltage ..... 230/460 V
- Phase ..... 3 Phase
- Frequency ..... 60 Hz
- Protection class IP55
- Efficiency class ..... Premium Efficiency
- Fan synchrone speed 1,800
- Frame size ..... NEMA Frame 284T
- Type ..... 1 Speed/1 Winding
- Enclosure ..... TEAO : Totally Enclosed Air Over/Airtight Motor

Aerodynamic Data (per unit)

Airflow (100% RPM/100% RPM) ..... 240,493 CFM
Number of fans 2
Fan type ..... Standard Fan
Minimum distance required for single unit (For multiple units, refer to Layout Guidelines)
- From solid wall with maximum air flow ..... 6.0 ft.
- From 50% open wall with maximum air flow ..... 3.0 ft.

Energy Rating

USGPM/HP per ASHRAE 90.1 , ASHRAE 189 and CA Title 24 ..... 64.98 USGPM/HP

Hydraulic Data (per unit)

Total pressure drop ..... 4.35 PSI
- Static lift ..... 4.35 PSI

Special Requirement(s)

Notes:

- Thermal performance at design conditions and total standard fan motor power is CTI/ECC certified
- These unit dimensions do not account for any accessories. Please contact BAC for dimensions of units with accessories.
- Refer to unit print for detailed dimensions.

Attachment D

- The values presented in this document are estimates only and are subject to change by BAC.

Sound Rating
Cooling Tower

Project Name: Academic Village Cooling Tower Replacement
Project City: WEST PALM BEACH
Project Country: United States

Model Information

Product line: Series 3000 Cooling Tower
Model: S3E-1222-06N-2/S
Number of units: 1
Total pump motor power:
Total standard fan power: 100%, 50.0 HP/Unit
Fan type: Standard Fan
Fan motor: (2) 25.0 = 50.0 HP/Unit

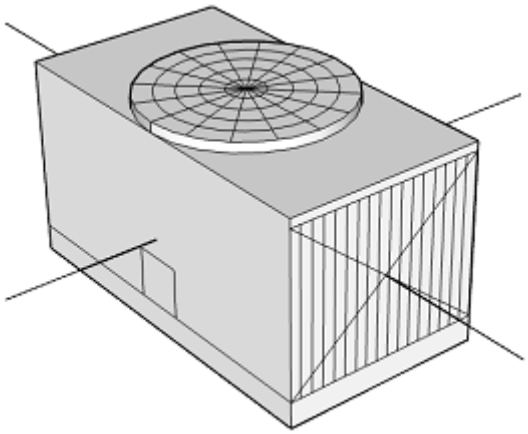
Intake option: None
Discharge option: None

Octave band and A-weighted sound pressure levels (Lp) are expressed in decibels (dB) reference 0.0002 microbar. Sound power levels (Lw) are expressed in decibels (dB) reference one picowatt. Octave band 1 has a center frequency of 63 Hertz.

Top Sound Pressure (dB)		
Octave Band	Distance	
	5 ft.	50 ft.
1	87	77
2	88	77
3	86	77
4	83	71
5	80	66
6	74	62
7	70	57
8	69	54
A-wgtd	**85**	**73**

Air Inlet Sound Pressure (dB)		
Octave Band	Distance	
	5 ft.	50 ft.
1	84	71
2	86	70
3	84	72
4	78	68
5	71	63
6	65	55
7	60	49
8	57	45
A-wgtd	**80**	**69**

End Sound Pressure (dB)		
Octave Band	Distance	
	5 ft.	50 ft.
1	79	72
2	79	67
3	77	68
4	70	63
5	66	58
6	58	49
7	51	44
8	49	39
A-wgtd	**73**	**64**



End Sound Pressure (dB)		
Octave Band	Distance	
	5 ft.	50 ft.
1	79	72
2	79	67
3	77	68
4	70	63
5	66	58
6	58	49
7	51	44
8	49	39
A-wgtd	**73**	**64**

Air Inlet Sound Pressure (dB)		
Octave Band	Distance	
	5 ft.	50 ft.
1	84	71
2	86	70
3	84	72
4	78	68
5	71	63
6	65	55
7	60	49
8	57	45
A-wgtd	**80**	**69**

Sound Power (dB)		
Octave Band	Center Frequency (Hertz)	Lw
1	63	109
2	125	109
3	250	109
4	500	103
5	1000	98
6	2000	94
7	4000	89
8	8000	86
A-wgtd		**105**

Notes

- The use of VFDs can increase sound levels.
- The values presented in this document are estimates only and are subject to change by BAC.
- Sound rating is for a single unit.
- Sound data provided by 'ATC 128 (2019)' sound test code.
- Sound data is free field data valid for unit installation without elevation, not taking into account any reflections. Octave band values are shown for indicative purposes only. Values are obtained according to CTI ATC-128 (Test Code for Measurement of Sound From Water-Cooling Towers) for small towers.

Mechanical Specifications
Cooling Tower

Attachment D

Background Information

Customer:	Tom Barrow Co. - SFL		
Project:	Academic Village Cooling Tower Replacement		
BAC Quote Number:	90609	**Line:**	100
Revision:	2	**Revision Name**:	Revision 2
Purchase Order No:			
Engineer:			

Model Information

Product line:	Series 3000 Cooling Tower
Model:	S3E-1222-06N-2/S
Quantity:	1
Knockdown For Field Assembly?	No

Mechanical Specifications

Unit Type	Induced Draft, Crossflow Cooling Tower Factory fabricated, induced draft, crossflow cooling tower with vertical discharge.
Quality Assurance	Quality Assurance - ISO 9001 Compliant Each unit is 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 compliant.
CTI Certification	CTI Certified Thermal Performance 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 RS. Your equipment may be selected for factory-testing to verify CTI certified performance. 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	JE PREMIER SERIES Construction All structural steel components are constructed from Type 304 stainless steel. All factory seams in the cold water basin will be welded to ensure watertight construction and shall be warranted against leaks for a period of five (5) years from date of shipment. Cold water basin includes a depressed section with drain/clean-out connection and the area under the fill sections is sloped toward the depressed section for easy cleaning. Hot water distribution basins are gravity type constructed of heavy gauge, Type 304 stainless steel. Polypropylene metering orifices are provided to assure even distribution of water over the wet deck surface. Heavy gauge, Type 304 stainless steel covers are furnished to prevent the accumulation of debris and algae in the hot water distribution basins.
Fan & Drive System	Standard Fan Driven by BALTIDRIVE® Power Train The fan is driven by a one-piece multi-groove, neoprene/polyester belt designed specifically for evaporative cooling equipment service. Motor is mounted on an adjustable motor base. Fan and motor sheaves are non-corrosive cast aluminum. The BALTIDRIVE® Power Train fan drive system, including fan motor, is warranted against defects in materials and workmanship for five (5) years from date of shipment. Fan and steel fan shaft are supported by heavy-duty, self-aligning, grease-packed, relubricatable ball bearings with special seals for protection against dust and moisture. All bearings are designed for minimum L10 life of 80,000 hours (280,000 hours average life).
Fan Guard	Stainless Steel Fan Guard A heavy gauge Type 304 stainless steel wire fan guard is provided over the fan cylinder.

Casing Panels	Fiberglass Reinforced Polyester (FRP) Casing Panels Casing panels are constructed of fiberglass-reinforced polyester (FRP), UV Protected panels. Hinged access doors are provided on both side walls of the tower for access to eliminators and fan plenum section for all cells. The doors are made of a steel frame matching the unit construction, with an exterior overlay of FRP.
Inlet Louvers	FRP Air Inlet Louvers Air inlet louvers are wave-formed, fiberglass-reinforced polyester (FRP), spaced to minimize air resistance and prevent water splash-out.
Fill	PVC Fill & Drift Eliminators The BACross® Fill and integral drift eliminators are formed from self-extinguishing (per ASTM D-568) polyvinyl chloride (PVC), having a flame spread rating of 5 per ASTM Standard E84-77a, and are impervious to rot, decay, and fungus or biological attack. The fill is elevated above the cold water basin floor to facilitate cleaning. This fill is suitable for a maximum entering water temperature of 130°F (54.44°C). The eliminators are designed to effectively strip entrained moisture from the leaving airstream with a minimum of air resistance.
Equipment Structure	Upgraded Structure Designed in accordance with the IBC and ASCE/SEI 7 The upgraded structure of this product has been designed and analyzed in accordance with the wind and seismic load requirements of the 2006 IBC, 2009 IBC, 2012 IBC, 2015 IBC, ASCE/SEI 7-05, and ASCE/SEI 7-10. Seismic qualification is based on analysis. For more information and specific wind and seismic load capacity ratings, please see the Certificate of Wind and Seismic Load Capacity.
Water Inlet(s)	End Inlet EASY CONNECT® Piping Arrangement Inlet water enters the EASY CONNECT® Piping Arrangement located on the end of the cell(s). Please see the submittal package for the connection type, size and location. The EASY CONNECT® Piping Arrangement balances the flow to each side of the tower and includes a plugged blow-down connection to permit purging of dirt and debris. Polyvinyl chloride (PVC) piping connects EASY CONNECT® Piping Arrangement Chamber to the hot water distribution basins.
Water Outlet(s)	End Outlet Pump Suction Connection A pipe stub connection(s) of a metal compatible with the cold water basin material and appropriately sized for design flow is provided. Please see the submittal package for the connection type, size and location. Also included is a large area, lift out strainer which matches the cold water basin material of construction and has perforated openings sized smaller than the water distribution nozzle orifices. Strainer includes anti-vortexing baffle to prevent air entrainment.
Flume Box Options	Less Flume Box The unit(s) are provided less flume box.
Basin Water Level Control	Mechanical Float Valves for Independent Cell Operation Each cell is provided with one make-up valve with unsinkable polystyrene filled plastic float arranged for easy adjustment. The make-up valve is suitable for water supply pressures between 15 psig (103 kPa) and 50 psig (345 kPa).
Penn F63 Float Switch	Penn F63 Float Switch The Single-Pole, Double-Throw (SPDT) Liquid Level Float Switch is provided in the cold water basin of the unit. When the level in the basin rises above or falls below the required level, the switch will close one circuit and open a second circuit.
Vibration Cutout Switch	Mechanical Vibration Cutout Switch with Alarm Contact Fan system is provided with a vibration cutout switch to limit damage to the unit in the event of a high vibration condition. The vibration switch, including external alarm capability, is mechanically tripped with a frequency range of 0 to 3,600 RPM and trip point of 0.2 to 2.0 g's. Switch rating is 10 amperes at a maximum 480 VAC, and 1/4 ampere at 250 Vdc. The remote reset and bypass time delay on start-up solenoid coil is powered by 110 Vac. Field wiring is by others.
Internal Access Option	Internal Walkway A G-235 (Z700 metric) galvanized steel walkway complying with OSHA standards and regulations provides access to the plenum to facilitate servicing the unit. Walkway submerged mounting supports match the cold water basin material of construction.

Special Requirement(s)

Attachment D

Baltimore Aircoil Company, Inc. Terms and Conditions of Sale

Pricing: Prices set forth in Seller's quotation shall remain firm for thirty (30) days. Within such period, the quotation shall convert into an order provided that all of the following have occurred: (1) Buyer submits either a purchase order or a copy of Seller's quotation displaying an authorized signature of Buyer within that thirty (30)-day period; (2) Buyer provides a release for fabrication; and (3) Buyer requests a shipment date that is no later than twelve (12) weeks from the date of Buyer's submission of a purchase order or signed quotation. In the event Buyer's requested shipment date is later than twelve (12) weeks beyond such submission date, Seller's price in effect twelve (12) weeks prior to such shipment date shall apply. In the event that Buyer requests for its convenience that Seller delay delivery of products subject to an order beyond the scheduled shipment date, pricing shall be subject to the same adjustment.
Payments: Terms of payment shall be net cash in thirty (30) days from date of invoice, subject to Seller's prior credit approval. If the Buyer shall fail to make any payments in accordance with the terms and conditions of sale, the Seller, in addition to its other rights and remedies but not in limitation thereof, may, at its option, without prior notice, cancel this order as to any undelivered products or defer shipments or deliveries hereunder, or under any other agreement between Buyer and Seller, except upon Seller's receipt of cash before shipment or such security as Seller considers satisfactory. Seller reserves the right to impose an interest charge (not exceeding the lawful maximum) on the balance of each invoice not paid on its due date for the period from the due date to the date of receipt of payment by Seller. In the event Buyer's failure to make timely payments to Seller results in Seller incurring additional costs, including but not limited to collection expenses and attorneys' fees, said costs shall be added to the amount due Seller from Buyer. Buyer shall have no right to any discount or retainage and shall not withhold payment as a set-off on Seller's invoice in any amount.
Taxes: Unless listed on the front (reverse) side of this document, prices do not include any federal, state or local sales, use or value-added taxes payable in connection with this order. All such taxes shall be paid by Buyer. Buyer shall indemnify Seller from and against such taxes, plus interest and penalties thereon, including, but not limited to, tax, interest and penalties resulting from a failure to collect such taxes because of Seller's reliance upon an invalid exemption certificate provided to Seller.
Allocation of Risk: Deliveries shall be considered made Ex-works BAC Factory. At such time, title to the goods and all risk of loss, or damage shall pass to Buyer.
Force Majeure: Seller shall under no circumstances be liable for any loss or damage resulting from delay or failure in the performance of its obligations under this contract to the extent that such performance is delayed or prevented by: fires, floods, war, terrorist activities, riots, strikes, freight embargoes or transportation delays, shortage of labor, inability to secure fuel, material, supplies or power at current prices, or on account of shortages thereof; acts of God or of the public enemy; any existing or future laws or acts of the federal, state or local government (including specifically, but not exclusively, any orders, rules or regulations issued by any official or agency of any such government) affecting the conduct of Seller's business with which Seller in its judgment and discretion deems it advisable to comply as a legal or patriotic duty, or to any case beyond the Seller's reasonable control.
Warranties: Seller warrants that the equipment sold under this contract shall be free from defects in material and workmanship for a period of twelve (12) months from the date of equipment startup or eighteen (18) months from the date of shipment, whichever occurs first. The following original equipment components only are warranted against defects in materials and workmanship for a period of five (5) years from date of shipment: fans, fan shafts, fan motors, bearings, sheaves, gearboxes, driveshafts, couplings, and mechanical equipment support. Exceptions and details of option-specific warranties follow:

- **TrilliumSeries® Adiabatic Condenser and Cooler** Seller warrants that the equipment sold under this contract shall be free from defects in material and workmanship for a period of twenty-four (24) months from the date of equipment startup or thirty (30) months from the date of shipment, whichever occurs first. The following original equipment components only are warranted against defects in materials and workmanship for a period of two (2) years from date of shipment: fans and fan motors. The sump and drain pans are warranted against leaks for a period of two (2) years from the date of shipment. Only leaks from the factory seams of the cold-water basin are covered; this warranty does not apply to sump field connections, field-installed options, or modifications by others. Seller does not warrant in any form parts that are considered to be consumable such as Adiabatic® Pre-Cooler Pads.
- **TrilliumSeries® Dry Coolers** Seller warrants that the equipment sold under this contract shall be free from defects in material and workmanship for a period of twelve (12) months from the date of equipment startup or eighteen (18) months from the date of shipment, whichever occurs first. The following original equipment components only are warranted against defects in materials and workmanship for a period of five (5) years from date of shipment: fans, fan shafts, fan motors, bearings, sheaves, and mechanical equipment support. This warranty does not apply to field-installed modifications by others. Seller does not warrant in any form parts that are considered to be consumable.
- **JE Premier Series® Construction** is warranted to be free from defects in material and workmanship for a period of five (5) years from date of shipment.
- **EVERTOUGH™ Construction** is warranted to be free from defects in material and workmanship for a period of five (5) years from date of shipment excluding heat transfer coils which are warranted to be free from defects in material and workmanship for a period of twelve (12) months from the date of equipment startup or eighteen (18) months from the date of shipment, whichever occurs first.
- **TriArmor® Corrosion Protection System** Cold Water Basins are warranted against leaks and corrosion for a period of ten (10) years from date of shipment. For the purposes of this warranty, "corrosion"means red rust formation on the interior of the cold water basin panels due to a failure of the TriArmor Corrosion Protection System. The leak or corrosion must be caused by a defect in the application of the TriAmor Corrosion Protection System. This warranty does not apply to cold water basin field connections, field installed options or modifications by others.
- **Welded 304 Stainless Steel** Cold Water Basins are warranted against leaks for a period of five (5) years from date of shipment. Only leaks from the factory seams of the cold water basin are covered; this warranty does not apply to cold water basin field connections, field installed options or modifications by others.
- **ENDURADRIVE® Fan System** motor is warranted to be free from defects in material and workmanship for a period of seven (7) years from date of shipment with factory authorized start up or five (5) years without factory authorized start up. The ENDURADRIVE Fan System variable frequency drive is warranted to be free from defects in material and workmanship for a period of five (5) years from date of shipment with factory authorized start up or one (1) year without factory authorized start up.
- **BAC Refrigeration Controls** are warranted to be free from defects in material and workmanship for a period of three (3) years from date of shipment with factory authorized start up or two (2) years without factory authorized start up.
- **Replacement Parts** provided by Seller under its original equipment warranty obligations are warranted against defects in materials and workmanship for a period of twelve (12) months from date of shipment or until expiration of their original warranty, whichever occurs first. Parts purchased after expiration of the original equipment warranty are warranted against defects in materials and workmanship for a period of twelve (12) months from date of shipment.
- **Original Equipment Fan Motors** are warranted against defects in materials and workmanship for a period of seven (7) years from date of shipment when space heaters are field-wired at time of initial installation per the motor nameplate.

Written notice of any defect shall be given to Seller immediately upon discovery by Buyer,and shall fully describe the claimed defect. Defective parts shall be repaired or replaced F.O.B. point of shipment, provided that inspection by Seller verifies the claimed defect(s). This shall be Buyer's exclusive remedy. **This warranty does not cover the costs of removing, shipping or reinstalling the equipment. Repairs made without the prior written approval of Seller shall void all warranties covering material and workmanship**. Any descriptions of the product(s) in the contract are for the sole purpose of identification and do not constitute a warranty. In the interest of product improvement, Seller reserves the right to change specifications and product design without incurring any liability therefore. The foregoing express warranties or those set forth elsewhere on this document are the only warranties of Seller applicable to the product(s) sold under this contract. **All other warranties, whether verbal or written, and all warranties implied by law, including any** warranties of merchantability or fitness for a particular purpose, are hereby excluded. Failure on the part of Buyer or of other parties to properly maintain the product(s) sold under this contract, or the operation of such product(s), by Buyer and/or other parties under conditions more severe than those for which such product(s) were designed, shall void all warranties covering materials and workmanship. Seller's warranties do not apply to defects in product(s) for which payment in full has not been received by Seller, and said warranties do not cover normal wear and tear or the erosion, corrosion and/or deterioration of the product(s) from unusual causes. No warranties by Seller shall apply to accessories manufactured by others, inasmuch as they are warranted separately by their respective manufacturers, except as stated above. Buyer assumes liability for and shall bear the costs of compliance with all laws, regulations, codes standards or ordinances applicable to the location, operation and maintenance of the product(s) sold under this contract, including those requirements pertaining to the distances between such product(s) and air-conditioning system duct intakes. No representative or agent of Seller is authorized to enlarge upon the express warranties of Seller.
Cancellation/Changes/Returns: Cancellation of or changes in any order by Buyer shall not be effective without Buyer's notice thereof received, agreed to, and confirmed in writing by Seller. If Seller, in its absolute discretion, approves Buyer's cancellation of an order, Buyer agrees to pay a reasonable cancellation charge. Seller's prior written consent must be obtained before Buyer returns any products, and when so returned will be subject to a handling charge and transportation costs payable by Buyer.
Liability/Indemnification: Seller shall not be liable for any damages caused by delay in delivery of the products. Buyer shall hold harmless and indemnify Seller from and against all liability, claims, losses, damages, and expenses (including attorneys' fees) for personal injury and property damage arising out of Buyer's improper unloading, handling, or use of the products subject to this order, and for Buyer's infringement of another's property rights. The Seller's maximum liability from any causes whatsoever, whether in breach of contract, tort (including negligence), strict liability, or otherwise, shall not exceed the contract price. Neither Buyer nor Seller shall in any event be liable to the other, whether such liability arises out of breach of contract, tort (including negligence), strict liability or any other cause or form of action, for any consequential, special, indirect or incidental damages, including but not limited to loss of actual or anticipated profits or loss of use arising out of this contract, other than such damages resulting from the willful misconduct of Buyer or Seller.
Storage: In the event that Buyer is unable to accept delivery of goods and the Seller is required to hold goods beyond two (2) working days from fabrication completion, a storage fee equal to the greater of $200/day or 0.20% of the total order value/day will be assessed by Seller for every day beyond two (2) working days from fabrication date which it is required to store goods on behalf of Buyer. Storage will be assessed monthly and will need to be paid in full prior to a new shipment date being scheduled.
Government Contracts: If Buyer's purchase order is for products to be used in the performance of a U.S. Government contract, those clauses of applicable procurement regulations mandatorily required by federal law to be included in U.S. Government subcontracts shall be incorporated herein by reference.
Export Transactions: Buyer shall comply with all applicable export laws and regulations of the U.S. Government, and shall hold harmless and indemnify Seller from and against all liability, damages, and expenses (including attorneys' fees) incurred by Seller as a result of Buyer's violation of any U.S. Government export and/or international antiboycott laws or regulations. Buyer certifies that it will be the recipient of the products to be delivered by seller. Buyer acknowledges that products are subject to export/import control laws of various countries, including the Export Administration Regulations of the United States. Products sold by seller cannot be transferred, sold or re-exported to any party on the Entity List or Restricted Persons list of the

US Department of Commerce Bureau of Industry and Security, any party designated by the US Treasury Depart-ment Office of Foreign Asset Control and any party debarred or sanctioned for proliferation or terrorism reasons by the US State Department.

Agreement of Sale: Buyer's order is accepted on the terms and conditions stated herein and Seller's acceptance of Buyer's order is expressly made conditional upon Buyer's assent to such terms and conditions, including any of Seller's terms and conditions which may be additional to or different from those contained in Buyer's purchase order or otherwise. Such assent shall be deemed to have been given unless written notice of objection to any such terms and conditions (including inconsistencies between Buyer's purchase order and this acceptance) is given by Buyer to Seller promptly upon receipt of this acknowledgment. Any agreement or understanding, oral or written, which modifies or waives the terms and conditions herein (whether contained in Buyer's purchase order or other documentation) shall be deemed material and shall be rejected unless hereafter agreed to in writing and signed by Seller's authorized officer. Waiver by Seller of any breach or default hereunder shall not be deemed a waiver by Seller of any other or subsequent breach or default which may thereafter occur. Neither the rights nor the obligations of either Buyer or Seller are assignable without the prior written consent of the other party. This agreement of sale and all rights and obligations of Buyer and Seller shall be governed by and construed in accordance with the laws of the State of Maryland.

An electronic copy of the latest version is available online at www.baltimoreaircoil.com/terms. (Revised – 8/23/2024)

Submittal Data
Cooling Tower

Attachment D

Date: 3/4/2025

Background Information

Customer:	Tom Barrow Co. - SFL		
Project:	Academic Village Cooling Tower Replacement		
BAC Quote Number:	90609	**Line:**	100
Revision:	2	**Revision Name:**	Revision 2
Purchase Order No:			
Representative:	Juan Gonzalez (NA - South) ✉ jgonzalez@tombarrow.com		

MODEL INFORMATION

Product line:	Series 3000 Cooling Tower	
Model:	S3E-1222-06N-2/S	
Quantity:	1	
Certified Capacity Per Unit:	Maximum capacity (unit):	13,440.39 MBH
	Water Flow Rate per Unit (GPM):	1,750.00 gpm
	Entering Water Temp (°F):	99.00 °F
	Entering Wet Bulb Temp (°F):	80.00 °F
	Leaving Water Temperature (°F):	85.00 °F
Fan Motor(s):	Enclosure:	TEAO : Totally Enclosed Air Over/Airtight Motor
	Fan Drive System:	BALTIDRIVE® Power Train
	Total standard fan power:	100%, 50.0 HP/Unit
	Fan motor:	(2) 25.0 = 50.0 HP/Unit
	Voltage:	230/460 V
	Frequency:	60 Hz
	Phase:	3 Phase
	Type:	1 Speed/1 Winding
	Quantity:	1
	Horsepower Motor A:	25.0 HP
	Fan Motor Options A:	Space Heater
	Add Shaft Grounding Ring?:	No
Execution:		

Notes:

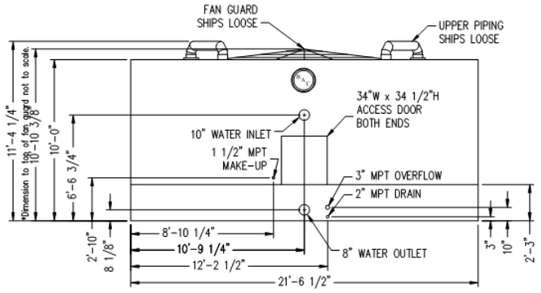
Attachment D

Drawings And Diagrams

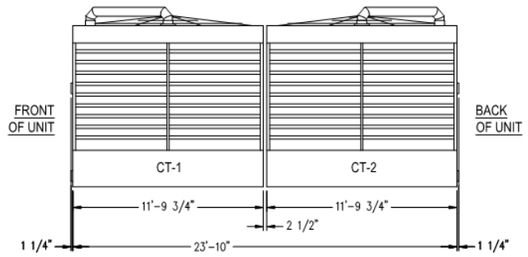
Drawing Type	Drawing Number
Unit Print	UP-90609-100
Unit Support	SS-90609-100
Center of Gravity	CG-90609-100
Basin Accessories	BA-90609-100
Motor Location	ML-90609-100

Drawing Type	Drawing Number
Space Heater Wiring	SW-90609-100
VCOS Location	VL-90609-100
VCOS Wiring	VW-90609-100
Internal Access	IA-90609-100
IBC Certificate	IC-90609-100

Data Version 1.40
DWG Version 2.0

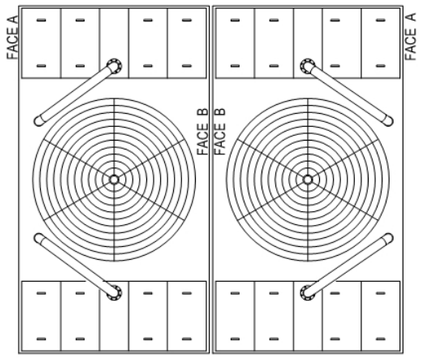


END ELEVATION (FACE A)
(CONNECTIONS SAME BOTH ENDS)



SIDE ELEVATION

Notes
1) Drawing is to scale unless noted otherwise. All dimensions are in feet and inches. Weights are in pounds and include options and accessories.
2) Unless otherwise indicated, connections 3" and smaller are MPT. Connections 4" and larger are grooved to suit a mechanical coupling and beveled for welding.
3) Field piping should be fabricated at time of installation. Pre-fabrication of pipe work is not recommended.
4) Do not support piping from unit connections. All necessary piping supports to be supplied by others.
5) For weight loadings and support requirements, refer to the suggested unit support drawing.
6) The area above the fan discharge must be unobstructed.
7) Due to height limitations on truck shipments, some items shown may ship loose for field installation.
8) Outlet connections are sized for pump suction application at the design flow rate. They are based on the maximum flow rate through the strainer with basin water at standard operating level.



PLAN VIEW

Model Number	Shipping Weight	Operating Weight	Heaviest Section
S3E-1222-06N-2/S	25590	50150	12795

WIND/SEISMIC UPGRADE

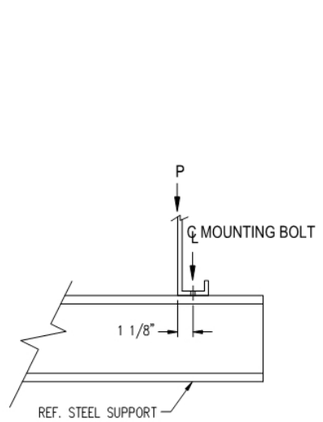
QUOTE NO: **90609-100**

DATE: **3/4/2025 8:32:10 AM ConfigVer=2**

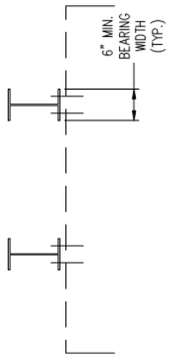
3000E Unit Print
One Piece Units

DRAWING NUMBER:
UP-90609-100

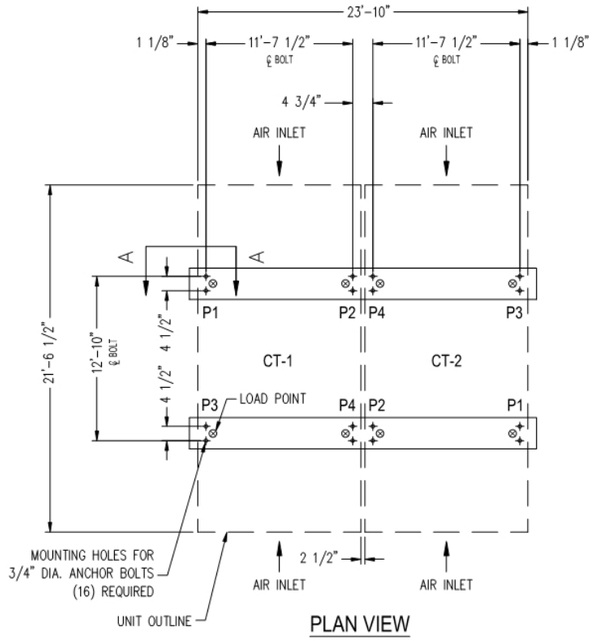
Data Version 1.40
DWG Version 1.3



SECTION "A-A"



END ELEVATION



PLAN VIEW

Notes
1) Drawings are not to scale. All dimensions are in feet and inches. Weights are in pounds and include options and accessories.
2) Operating weight and weight loading are for units with water level in basin at overflow.
3) Unit support beams and anchor bolts to be designed and furnished by others.
4) Support beams must be flush and level at top.
5) Steel frame members perpendicular to the support beams and under the air inlet edges of unit must be at least 2" below the top of the support beams.

Model Number	Shipping Weight	Operating Weight	Point "1"	Point "2"	Point "3"	Point "4"	Point "5"	Point "6"	Point "7"	Point "8"
S3E-1222-06N-2/S	25590	50150	6269	6269	6269	6269	0	0	0	0

PLAN "A" STEEL

QUOTE NO: **90609-100**

DATE: **3/4/2025 8:32:35 AM ConfigVer=2**

3000E Unit Support
Standard Basins

DRAWING NUMBER:
SS-90609-100

Data Version 1.40
DWG Version 1.0

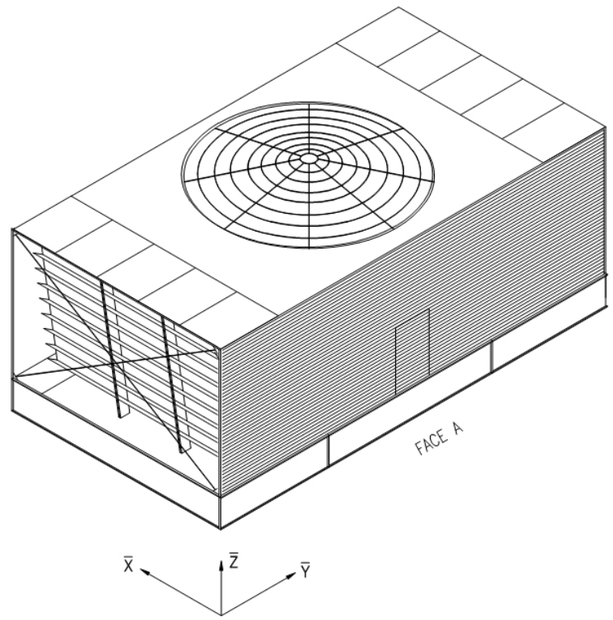
UNIT CENTER OF GRAVITY

$\bar{X}$		$\bar{Y}$		$\bar{Z}$	
DRY	OPERATING	DRY	OPERATING	DRY	OPERATING
6'-3 3/4"	6'-0 3/4"	10'-10 1/2"	10'-9 1/2"	4'-10"	3'-11"

WEIGHT BREAKDOWN FOR FIELD INSTALLED ACCESSORIES

VELOCITY RECOVERY STACK (EACH): N/A
INTAKE ATTENUATION (EACH): N/A
DISCHARGE ATTENUATION (PER CELL): N/A
FAN COWL EXTENSIONS (EACH): N/A
LOUVER FACE PLATFORMS (EACH): N/A
ACCESS DOOR PLATFORMS (EACH): N/A
EXTERNAL MOTOR PLATFORMS (EACH): N/A
FAN DECK EXTENSION (EACH): N/A
FAN DECK HANDRAILS (TOTAL): N/A

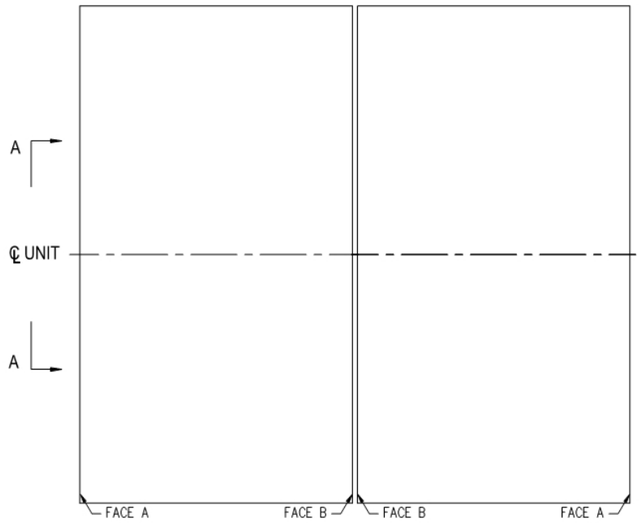
Notes
1) Drawings are not to scale.
2) Accessory weights shown above are included in the total unit Operating, Shipping and Heaviest Section values located on the Unit Print and Unit Support drawings. Ladder and cage weights are not shown above but are included in the totals.
3) These accessories ship loose for field assembly and installation.



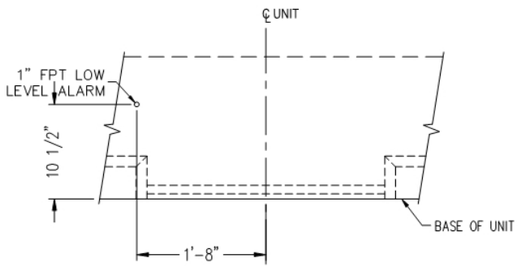
QUOTE NO: **90609-100**		**3000E Center of Gravity**
DATE: **3/4/2025 8:32:56 AM ConfigVer=2**		DRAWING NUMBER: **CG-90609-100**

Data Version 1.40
DWG Version 1.0

Notes



PLAN VIEW

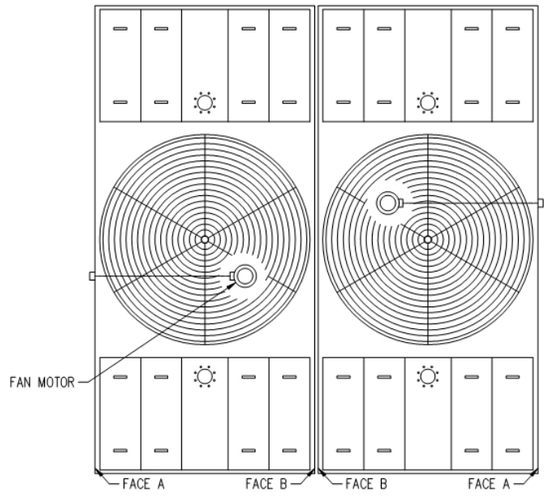


END ELEVATION DETAIL VIEW A-A

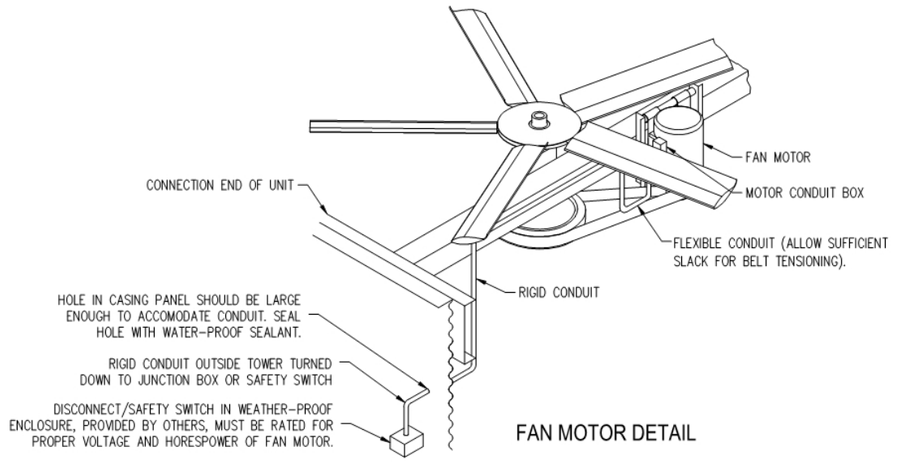
CONTROLS IN ALL CELLS

QUOTE NO: **90609-100**		**3000E Basin Accessories**
DATE: **3/4/2025 8:33:37 AM ConfigVer=2**		DRAWING NUMBER: **BA-90609-100**

Data Version 1.40
DWG Version 1.1



PLAN VIEW



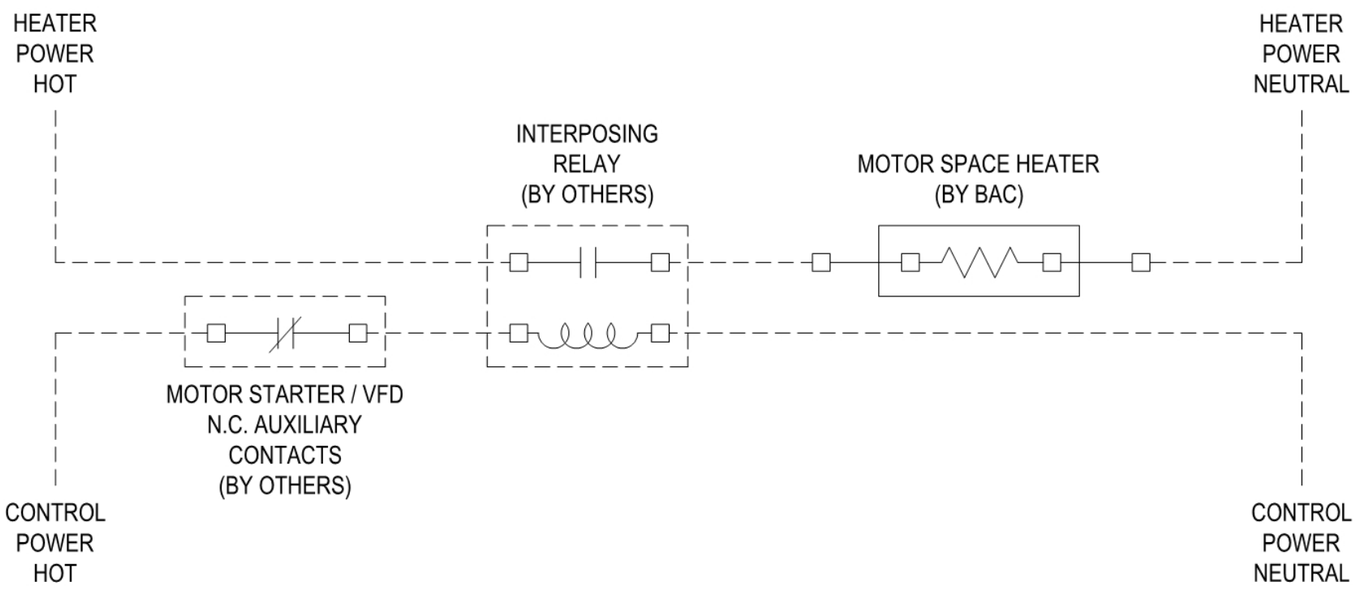
FAN MOTOR DETAIL

Notes
1) Drawings are not to scale.
2) Conduit must be water tight and pitched downward to allow condensation to drain away from fan motor conduit box. Therefore, do not run the conduit through fan deck.
3) All wiring must conform to local and national electrical codes. Junction box/safety switch and all conduit from fan motor conduit box to be sized, provided, and installed by others.
4) Rigid conduit outside casing panel must turn down to junction box.
5) For proper motor orientation see plan view.

QUOTE NO: **90609-100**		**3000E Motor Location**
DATE: **3/4/2025 8:33:16 AM ConfigVer=2**		DRAWING NUMBER: **ML-90609-100**

Data Version 1.40
DWG Version 1.2

Notes
1) Motor Heater should only be energized when the fan is stopped (0% fan speed).
2) Interposing relay must be sized per the heater power consumption.
3) Heater sizes shown below are maximum values. Refer to the motor nameplate for final power requirements.
4) General heater wiring details shown, see diagram on motor for specific details.
5) All wiring must comply with all codes and standards applicable for the installed jurisdiction, which may include requirements for additional disconnects, over current protection, and/or other safety devices.
6) Dashed lines represent field supplied wiring.
7) Space heater wiring leads may be located in either the main outlet box, or an auxiliary box if so equipped.



For units that ship from the US, heaters are 110-120 VAC/ 50 or 60 Hz based on motor configuration.
For units that ship from China, heaters are 200-240 VAC/ 50 or 60 Hz based on motor configuration.

QUOTE NO: **90609-100**		**Fan Motor Space Heater Wiring Schematic - General**
DATE: **3/4/2025 8:33:56 AM ConfigVer=2**		DRAWING NUMBER: **SW-90609-100**

OPERATING INSTRUCTIONS

Follow the installation drawings and wiring diagram to ensure the proper operation of the vibration switch. Direct any questions to your local BAC Representative.

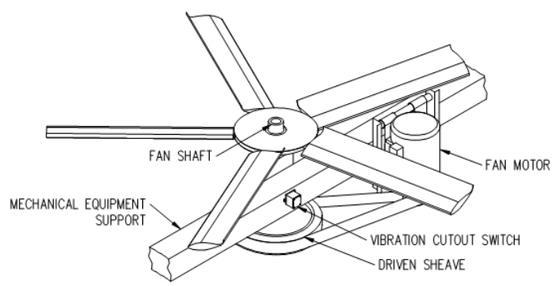
NOTE

Moisture inside the switch can lead to switch failure. Care must be taken when replacing the cover on the vibration switch to ensure that the proper watertight seal is obtained.

CAUTION

Before performing any maintenance, adjustment or inspection of the switch, make certain that all power has been disconnected and locked in the off position.

SWITCH LOCATION
Belt Drive Units



QUOTE NO: **90609-100**		**VCOS Location**
DATE: **3/4/2025 8:34:59 AM ConfigVer=2**		DRAWING NUMBER: **VL-90609-100**

NOTES:

1. LOCAL PUSH BUTTON RESET.
2. TO MAINTAIN HAZARDOUS DUTY RATINGS, THE FACTORY INSTALLED WATER TIGHT CONNECTION FITTINGS MUST BE REMOVED AND THE NINE CONDUCTOR CABLE MUST BE ROUTED INSIDE OF A SUITABLE EXPLOSION PROOF CONDUIT. NOTE: THE CONNECTORS CAN EASILY BE REMOVED WITHOUT HAVING TO UN-WIRE THE CONDUCTORS FROM INSIDE THE CUTOUT SWITCH.
3. THE MECHANICAL VIBRATION CUTOUT SWITCH COMES WITH TWO WATER TIGHT CONDUIT/CABLE CONNECTORS. ONE CONNECTOR IS USED TO PROVIDE A WATER TIGHT CONNECTION TO THE VIBRATION CUTOUT SWITCH AND THE OTHER IS PROVIDED FOR THE ELECTRICIAN TO CONNECT THE WIRE CABLE TO A JUNCTION BOX LOCATED IN THE VICINITY OF THE VIBRATION CUTOUT SWITCH.
4. THE SWITCHES IN THE NORMALLY CLOSED CIRCUITS (BLACK WIRE FOR SW-1 AND YELLOW WIRE FOR SW-2) WILL OPEN WHEN THE DEVICE EXPERIENCES VIBRATION LEVELS ABOVE THE SETPOINT VALUE. IF REVERSE CONTROL LOGIC IS DESIRED, CUT OFF BUTT END CONNECTORS ON WHITE AND/OR BROWN WIRES AND THEN INSTALL WIRE NUT OR BUTT CONNECTOR ON NORMALLY CLOSED WIRES (BLACK AND/OR YELLOW).
5. THIS MECHANICAL VIBRATION CUTOUT SWITCH COMES WITH TWO SINGLE POLE DOUBLE THROW SWITCHES. BOTH SWITCH CONTACTS ARE "DRY CONTACTS" WHICH CAN BE SUCCESSFULLY USED DIRECTLY IN THE FAN STARTER CONTROL CIRCUIT (TYPICALLY A/C VOLTAGE) CIRCUIT OR IN A BUILDING MANAGEMENT SYSTEM (TYPICALLY D/C VOLTAGE). CONTACT RATINGS: 3 AMPS@ 125 OR 480 VAC, 1/2 AMP@ 125 VDC, 1/4 AMP@ 250 VDC.
6. **CAUTION**: MOISTURE INSIDE THE SWITCH CAN LEAD TO SWITCH FAILURE. CARE MUST BE TAKEN WHEN REPLACING THE COVER ON THE VIBRATION SWITCH TO ENSURE THAT THE PROPER WATERTIGHT SEAL IS OBTAINED.

ADJUSTMENTS OF BAC MECHANICAL VIBRATION CUTOUT SWITCH

BAC RECOMMENDS THAT EACH VIBRATION CUTOFF SWITCH BE FIELD ADJUSTED AT START-UP TO OPTIMIZE THE TRIP POINT RELATIVE TO THE FINAL MOUNTING POSITION AND VIBRATION CHARACTERISTICS OF THE INSTALLED EQUIPMENT.

NOTE: INSTALLATION AND ADJUSTMENT MUST BE PERFORMED BY QUALIFIED, COMPETENT TECHNICIAN

1. FOR YOUR SAFETY, TURN OFF, THEN LOCK & TAG-OT THE ELECTRICAL SUPPLY TO THE FAN MOTOR(S).
2. PUSH IN THE MANUAL RESET SWITCH TO ENSURE UNIT IS IN UNTRIP STATE (USING AN OHMMETER, VERIFY THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS CLOSED. THE SWITCH COMES WITH PRE-WIRED CABLE SO OPENING THE SWITCH IS **NOT** NECESSARY TO PERFORM THIS TASK. IF CIRCUIT IS OPEN (TRIPPED STATE) SKIP STEP 3 AND GO TO STEP 4.
3. TURN ADJUSTMENT SCREW CONTERCLOCKWISE (CCW) 1/8 TURN AT A TIME UNTIL THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS OPEN (TRIPPED STATE)
4. ONCE TRIPPED, ROTATE ADJUSTMENT SCREW ¼ TURN CLOCKWISE (CW) AND THEN PUSH IN MANUAL RESET BUTTON (THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS CLOSED)
5. START UP FAN(S) TO DETERMINE IF THE START-UP WILL CAUSE THE CUT-OUT SWITCH TO TRIP.
   a. IF THE VIBRATION CUTOUT SWITCH DOES NOT TRIP:
   i. START AND STOP THE FAN TWO MORE TIMES AND IF THE CUTOUT SWITCH STILL DOES NOT TRIP, THEN CALIBRATION IS COMPLETE.
   b. IF THE VIBRATION CUTOUT SWITCH DID TRIP:
   i. TURN OFF, THEN LOCK & TAG-OUT THE ELECTRICAL SUPPLY TO THE FAN MOTOR(S).
   ii. ADJUST THE SET POINT SCREW AN ADDITIONAL ¼ TURN CW AND THEN PUSH IN THE RESET BUTTON.
   iii. RE-START THE FAN(S) TO DETERMINE IF THE START-UP WILL CAUSE THE SWITCH TO TRIP.

NOTE: REPEAT THIS ADJUSTMENT PROCESS (STEP 5.b.i-5.b.iii) UNTIL THE UNIT DOES NOT TRIP.

   iv. ONCE THE FINAL ADJUSTMENT HAS BEEN MADE, START AND STOP THE FAN TWO MORE TIMES AND IF THE CUOUT SWITCH STILL DOES NOT TRIP, THEN CALIBRATION IS COMPLETE.

COMBINATION REMOTE ELECTRICAL RESET AND TIME DELAY START-UP:

1. THE REMOTE RESET AND TIME DELAY ON START-UP SOLENOID ELECTRICAL CIRCUIT SHOULD BE ENERGIZED (VOLTAGE APPLIED) WHENEVER THE FAN IS ON AND DE-ENERGIZED WHENEVER THE FAN IS OFF.

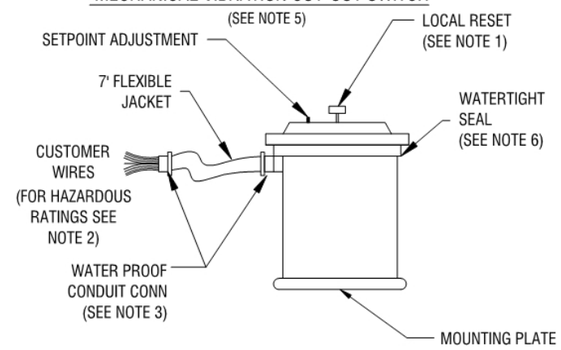
2. THE REMOTE RESET AND TIME DELAY ON START-UP CIRCUIT CONSISTS OF AN ELECTRICAL SOLENOID IN SERIES WITH A THERMISTOR. WHEN THE RATED VOLTAGE IS CONTINUALLY PROVIDED TO THE SOLENOID CIRCUIT AT START-UP, THE RESET SOLENOID BECOMES ENERGIZED FOR APPROXIMATELY 30 SECONDS AFTER WHICH TIME THE HEATED THERMISTOR CAUSES THE SOLENOID TO AUTOMATICALLY BECOME DE-ENERGIZED. THIS ACTION PROVIDES A TRIP LOCKOUT (BYPASS) DURING MACHINE START-UP FOR APPROXIMATELY 30 SECONDS.

3. WHEN THE FAN(S) IS SHUT DOWN, THE VOLTAGE TO THE SOLENOID ELECTRICAL CIRCUIT MUST BE REMOVED TO ALLOW THE THERMISTOR TIME TO COOL OTHERWISE THE START-UP DELAY WILL BE BYPASSED. ONCE THE THERMISTOR COOLS DOWN, THE SWITCH CAN BE REMOTELY RESET BY MOMENTARILY APPLYING VOLTAGE TO THE SOLENOID ELECTRICAL CIRCUIT. IT CAN ALSO BE RESET MANUALLY BY DEPRESSING THE PUSH BUTTON SWITCH. IF START-UP BYPASS IS UNDESIRED, THEN THE VOLTAGE MAY BE LEFT ON WHEN THE FAN IS OFF HOWEVER THE REMOTE RESET WILL NOT FUNCTION UNTIL THE VOLTAGE IS REMOVED AND THE THERMISTOR HAS HAD TIME TO COOL DOWN.

WIRING OF VIBRATION CUTOUT SWITCHES ON UNITS WITH MULTIPLE MOTORS OR CUTOUT SWITCHES:

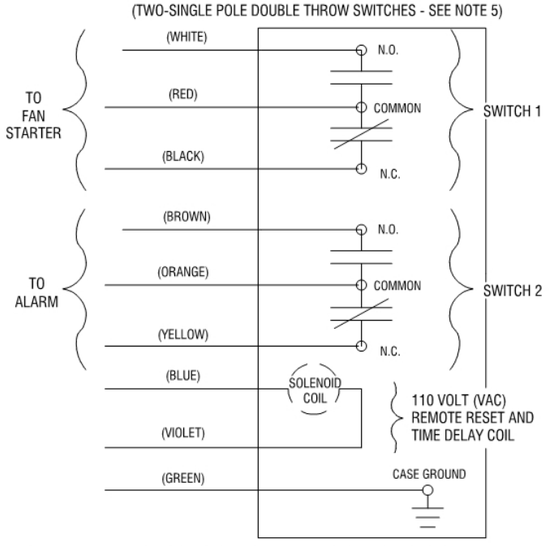
VIBRATION CUTOUT SWITCHES SHOULD BE WIRED TO SHUT OFF ALL MOTORS ON THE ASSOCIATED FAN DRIVE SYSTEM. THIS MAY REQUIRE WIRING MULTIPLE CUTOUT SWITCHES TO SHUT OFF A SINGLE MOTOR OR WIRING A SINGLE CUTOUT SWITCH TO SHUT OFF MULTIPLE MOTORS. CONTACT YOUR CONTROLS INTEGRATOR FOR DETAILS ON HOW TO WIRE MULTIPLE SWITCHES.

MECHANICAL VIBRATION CUT-OUT SWITCH



WIRING DIAGRAM

(TWO-SINGLE POLE DOUBLE THROW SWITCHES - SEE NOTE 5)



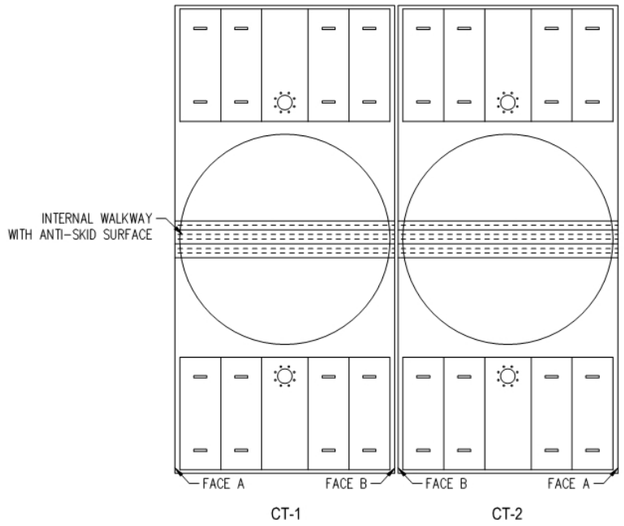
BEFORE PERFORMING ANY MAINTENANCE, ADJUSTMENT OR INSPECTION OF THE SWITCH, MAKE CERTAIN THAT ALL POWER HAS BEEN DISCONNECTED AND LOCKED IN THE OFF POSITION.

Data Version 1.12
DWG Version 1.10

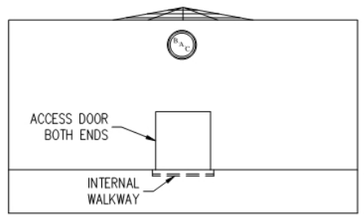
QUOTE NO: **90609-100**		**Mechanical VCOS Wiring With Remote/Local Reset, Alarm & Delay (110 VAC)**
DATE: **3/4/2025 8:35:18 AM ConfigVer=2**		DRAWING NUMBER: **VW-90609-100**

Data Version 1.40
DWG Version 1.0

Notes
1) Drawings are not to scale.
2) Field piping must be kept clear and supported independently of all unit access accessories.



PLAN VIEW



QUOTE NO: **90609-100**		**3000E Internal Access**
DATE: **3/4/2025 8:34:39 AM ConfigVer=2**		DRAWING NUMBER: **IA-90609-100**

Certificate of Wind and Seismic Load Capacity

2006, 2009, 2012, and 2015 International Building Codes (IBC)

Product Line:	Series 3000 Open Cooling Tower
Model:	S3E-1222-06N-2/S

The Baltimore Aircoil Company evaporative cooling product referenced in this certificate has been designed and analyzed in accordance with the wind and seismic load requirements of the 2006 IBC, 2009 IBC, 2012 IBC, 2015 IBC, ASCE/SEI 7-05, and ASCE/SEI 7-10. Seismic qualification is based on analysis.

Wind and seismic load capacities for the referenced unit are provided below. It is the responsibility of the purchaser to determine the suitability of this unit for the specific application. Field modifications to the unit may void this certificate.

Wind Load Rating		
Horizontal Pressure (psf):	p_h = 138.00	in accordance with ASCE/SEI 7-05
Horizontal Pressure (psf):	p_h = 138.00	in accordance with ASCE/SEI 7-10
Vertical Uplift Pressure (psf):	p_v = 109.00	
Conditions:	The unit is supported and anchored as recommended. Anchor bolts are 3/4" diameter, SAE J429 Grade 5 or equivalent.	
Seismic Load Rating		
Design Spectral Acceleration (g) for Component Importance Factor, I_p = 1.0:	S_{DS} = 2.64	on grade (z/h = 0.0), rigid mount
	S_{DS} = 0.88	on rooftop (z/h = 1.0), rigid mount
	S_{DS} = 0.59	on rooftop (z/h = 1.0), spring-isolation mount
Conditions:	The unit is installed outside and not within an occupied space.	
	The unit is supported and anchored as recommended. Anchor bolts are 3/4" diameter, SAE J429 Grade 5 or equivalent.	
	All piping provided by others is supported and restrained independently of the unit.	

QUOTE NO: **90609-100**

DATE: **3/4/2025 8:34:18 AM ConfigVer=2**

DRAWING NUMBER: **IC-90609-100**

Attachment D

Attachment E

SECTION 236500
COOLING TOWERS

PART 1 GENERAL

1.01 **SECTION INCLUDES**

A. Open circuit, induced draft, crossflow cooling towers.

1.02 **REFERENCE STANDARDS**

A. ASHRAE 90.1-2019 – Energy Standard for Buildings Except Low-Rise Residential Buildings.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2018.

D. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus 2018.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2018b.

F. ASTM D2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

G. ABMA STD 9 - Load Ratings and Fatigue Life for Ball Bearings 2015.

H. ABMA STD 11 - Load Ratings and Fatigue Life for Roller Bearings 2014.

I. CTI STD-201 OM - Operations Manual for Thermal Performance Certification of Evaporative Heat Rejection Equipment 2017.

J. CTI STD-201 RS - Performance Rating of Evaporative Heat Rejection Equipment 2017.

K. CTI STD-111 - Gear Speed Reducers for Application on Industrial Water Cooling Towers; 2009. (Only for gear-driven products)

L. ISO 9001 - Quality management systems -- Requirements 2015.

M. NEMA MG 1 - Motors and Generators 2017.

N. ASCE/SEI 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

1.03 **SUBMITTALS**

A. Product Data: Provide rated capacities, dimensions, weights and point loadings, accessories, required clearances, electrical requirements and wiring diagrams, and location and size of field connections.

B. Shop Drawings: Indicate suggested structural steel supports including dimensions, sizes, and locations for mounting bolt holes.

C. Manufacturer's Certificate: Certify that cooling tower performance, based on CTI STD-201 meets or exceeds specified requirements and submit performance curve plotting leaving water temperature against wet bulb temperature.

D. Manufacturer's Instructions: Submit manufacturer's complete installation instructions.

E. Operation and Maintenance Data: Include start-up instructions, maintenance data, controls, and accessories.

F. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

1.04 **QUALITY ASSURANCE**

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum 20 years of documented experience and ISO 9001 certification.

B. Installer Qualifications: Company specializing in performing the type of work specified in this section with minimum 20 years of experience and approved by manufacturer.

C. Product Performance:

1. Cooling tower must have a minimum energy rating of [_____] per ASHRAE 90.1, 189 and CA Title 24.

2. Structural and Seismic Performance: The structure will be designed, tested and certified in accordance with IBC regulations to meet a minimum unrestricted seismic design SDS = ___ g with an Importance Factor of ___ and wind load of __ psf. Units not provided with a certificate of IBC compliance will not be an acceptable alternative.

1.05 **DELIVERY, STORAGE, AND HANDLING**

A. Equipment will be factory-assembled, including a cold water basin, heat transfer section, water distribution, fan drive system, and casing panels. For shipping, disassemble into as large as practical sub-assemblies to minimize field work for re-assembly.

B. Comply with manufacturer's installation instructions for rigging, unloading, and transporting units.

1.06 **WARRANTY**

A. One-year warranty after start-up, or eighteen months from date of shipment, whichever occurs first. Warranty to include coverage for defects in material and workmanship.

B. Fans, fan shafts, bearings, sheaves, gearboxes, drive shafts, couplings, and mechanical equipment support must be warranted against defects in materials and workmanship for a period of five (5) years or seven (7) years, if motor space heater is properly wired.

C. For direct drive fan system: Fans, fan shafts, bearings, sheaves, gearboxes, drive shafts, couplings, and mechanical equipment support must be warranted against defects in materials and workmanship for a period of seven (7) from date of shipment. Included VFD will have 5-year warranty.

PART 2 PRODUCTS

2.01 **MANUFACTURERS**

A. Open Circuit, Induced Draft, Crossflow Cooling Towers:

1. Basis of Design: Baltimore Aircoil Company; Series 3000: www.baltimoreaircoil.com #BAC

2.02 **MANUFACTURED UNITS**

A. Provide units suited for outdoor use, factory-assembled, induced draft with vertical discharge of air, and fan assemblies built into casing.

----- ALTERNATE for Knockdown Shipping -----

B. Provide units suited for outdoor use, induced draft with vertical discharge of air. Units will be shipped disassembled in protective crates. Crates and components must be clearly labeled with part numbers. Assembly of units will be completed onsite. Cold water basins will not have welded seams when shipped knocked down.

2.03 **COMPONENTS**

A. Cold Water Basin:

1. Constructed with a minimum of 14-gauge galvanized steel with access doors at both ends of tower to air plenum. A removable anti-vortexing hood will be provided to prevent air entrainment. Large area lift out strainers will be provided with perforated openings sized smaller than the water distribution system nozzles. Provide sloped basin with drain/clean-out connection.

   ----- ALTERNATE for TriArmor Basin -----

2. Tri-layer protection system consisting of G-235 galvanized steel, a thermosetting hybrid polymer, and a polyurethane liner factory applied to all submerged surfaces. A Removable anti-vortexing hood will be provided to prevent air entrainment. Large area lift out strainers will be provided with perforated openings sized smaller than the water distribution system nozzles. Sloped with depressed section with drain/clean-out connection. A welded Type 316 stainless steel basin is an acceptable alternative.

   ----- ALTERNATE for 304 Stainless Steel -----

3. Type 304 welded stainless steel panels and structural members. A removable anti-vortexing hood will be provided to prevent air entrainment. Large area lift out strainers will be provided with perforated openings sized smaller than the water distribution system nozzles. Sloped with depressed section with drain/clean-out connection. Basins with bolted seams or constructed of 301 stainless steel are not acceptable.

   ----- ALTERNATE for 316 Stainless Steel-----

4. Type 316 welded stainless steel panels and structural members. A removable anti-vortexing hood will be provided to prevent air entrainment. Large area lift out strainers will be provided with perforated openings sized smaller than the water distribution system nozzles. Sloped with depressed section with drain/clean-out connection. Basins with bolted seams or constructed of 301 stainless steel are not acceptable.

   -----ALTERNATE for Basinless Unit-----

5. The unit will be provided without an integral cold water basin. The unit will be mounted on a separate concrete cold water basin provided by others, to allow cooling water to pass directly from the fill into the basin.

6. (Optional) Flume Box: Unit will be equalized with adjacent cell(s) through a factory-supplied flume box connection built into the cold water basin. Hardware, gaskets, and flume will be supplied. Size will be appropriate for the design flowrate of the tower.

7. (Optional) Equalizer Connection: An equalizer connection will be built into the cold water basin on the [bottom, side] with a pipe diameter appropriate for the design flowrate of the tower. See drawings for connection type.

8. (Optional) Bypass Connection: A bypass connection will be built into the cold water basin on the [bottom, side] with a pipe diameter appropriate for the design flowrate of the tower. See drawings for connection type.

B. Water Distribution System

1. The hot water distribution basins will be gravity-fed and accessible from the outside of the unit for service or inspection while unit is in operation. Included weir dams will accommodate a flow range of 50% to 100% of the design flow rate. Lift-off distribution covers will be constructed of steel and designed to withstand a 50 psf (244 kg/m2) live load or 200 pound (90.7 kg) concentrated load.

----- ALTERNATE for EVERTOUGH Construction-----

2. The hot water distribution basins will be gravity-fed and accessible from the outside of the unit for service or inspection while unit is in operation. Basins must be constructed of corrosion-resistant pultruded fiberglass reinforced polyester (PFRP) or type 316 stainless steel. Included weir dams will accommodate a flow range of 50% to 100% of the design flow rate. Lift-off distribution covers will be constructed of Type 304 stainless steel and designed to withstand a 50 psf (244 kg/m2) live load or 200 pound (90.7 kg) concentrated load.

C. Casing Panels and Framework:

1. Casing panels will be constructed of corrosion and UV-resistant fiberglass-reinforced polyester (FRP) or Type 304 stainless steel to minimize maintenance requirements and prolong equipment life.

----- ALTERNATE for Thermosetting Hybrid Polymer Panels-----

2. Casing panels will be constructed of galvanized steel protected by a thermosetting hybrid polymer. The polymer to consist of galvanized steel prepared in a four-step (clean, pre-treat, rinse, and dry) process with an electrostatically applied, thermosetting, hybrid polymer fuse-bonded to the substrate during a thermally activated curing stage and monitored by a 23-step quality assurance program. Other coatings must be submitted to the engineer for pre-approval. Approved equals must have undergone testing, resulting in the following results as a minimum:

a. When X-scribed to the steel substrate, unit to withstand 6000 hours of 5 percent salt spray per ASTM B117 without blistering, chipping, or loss of adhesion.

b. When X-scribed to the steel substrate, unit to withstand 6000 hours of exposure to acidic (pH=4.0) and alkaline (pH=11.0) water solutions at 95 degrees F (35 degrees C) without signs of chemical attack.

c. Unit to withstand impact of 160 in-lbs per ASTM D2794 without fracture or delamination of the polymer layer.

d. Unit to withstand 6000 hours of ultraviolet radiation equivalent to 120,000 hours of noontime sun exposure without loss of functional properties.

e. Unit to withstand 200 thermal shock cycles between minus 25 degrees F and 180 degrees F (minus 32 degrees C and 82 degrees C) without loss of adhesion or other deterioration.

f. Unit to withstand 6000 hours of exposure to 60 psi (42,184 kg/m^2) water jet without signs of wear or erosion.

g. Type 304 stainless steel may be supplied as an equal to eliminate the need for passivation, minimize maintenance requirements, and prolong equipment life.

----- ALTERNATE for Galvanized Steel Panels-----

3. Casing panels and framework will be constructed of G235 galvanized steel.

----- ALTERNATE for 304 Stainless Steel Panels-----

4. Casing panels, framework, and fasteners will be constructed of Type 304 stainless steel. Type 301 stainless steel is not an acceptable alternative.

----- ALTERNATE for 316 Stainless Steel Panels-----

5. Casing panels, framework, and fasteners will be constructed of Type 316 stainless steel. Type 301 or 304 stainless steel are not an acceptable alternative.

D. Air Inlet Louvers

1. Fiberglass Reinforced Polyester (FRP): Air Inlet louvers will be separate from the fill and removable to provide easy access for inspection of the air/water interface at the louver face. Louvers will prevent water splash out during fan cycling and be constructed of maintenance free, corrosion and UV resistant FRP.

   ----- ALTERNATE for Steel Louvers-----

2. Steel Louvers: Air inlet louvers will be separate from the fill and removable to provide easy access for inspection of the air/water interface at the louver face. Louvers will prevent water splash out during fan cycling. Material of construction must match steel grade of casing panels.

   ----- ALTERNATE for Combined Inlet Shields (PVC)----

3. PVC Inlet Shields: Louver sections will be individually removable sections. The combined inlet shields will be UV resistant PVC, installed on the air inlet face to minimize air resistance, prevent water splash out, and minimize sunlight exposure to reduce the potential for algae growth in the cold water basin.

4. (Optional) Air Intake Screens:

   a. A removable galvanized steel wire mesh screen with 1”x1” openings will cover air intake areas.

   ----- ALTERNATE for Stainless Steel Screens----

   b. A removable stainless steel wire mesh screen with 1”x1” openings will cover air intake areas.

E. Fans: Multi blade, axial type. Fans must factory test-mounted, balanced, and aligned to ensure reliable operation and ease of maintenance. Fan type will be selected to meet sound ratings published on equipment schedule.

F. Motors:

1. Single speed (1800 rpm) premium efficiency, cooling tower duty motor mounted on adjustable steel base. Fan motors will be inverter duty type designed per NEMA Standard MG1, Section IV Part 31. Motors will include an internal space heater that can be wired to remove condensation when motor is not in use.

   ----- ALTERNATE ENDURADRIVE Fan System -----

2. Direct Drive Motor: See Direct Drive Fan System (2.03 G)

G. Fan Drive System:

1. Direct Drive Fan System: The motor will be directly connected to the fan shaft within the airstream, eliminating the need for couplings, right-angle gears, belts, or sheaves.

   a. Quality Assurance

      1) Tower thermal performance must be certified per CTI STD-201.

      2) Manufactured under ISO 9001 approved quality assurance program.

      3) Seismic shake table tested per ICC-ES A156; must meet local Sds requirement but cannot be less than 0.50.

      4) Tested and certified to operate continuously at 104°F ambient wet bulb temperature.

      5) Compatible VFD supplied by tower manufacturer; see VFD specification for details.

b. (OPTIONAL) Factory Test: The motor will be wired and tested prior to shipping. Testing done on-site is not acceptable. Testing will include:

   (a) Installation of unit on a test stand for a visual/audible inspection to confirm no excess movement or unusual noises exist.

   (b) Wiring of motor to a VFD.

   (c) Running the motor to a specified speed/frequency and taking measurements of power draw to ensure appropriate loading is being achieved.

   (d) Documentation of testing results supplied in the customer's documents.

c. General

   1) CSA Label and CE mark for safety compliance.

   2) Totally Enclosed Air Over (TEAO) IP56 rating.

   3) Interior permanent magnet rotor construction; synchronous design; magnets enclosed inside the rotor lamination; magnets with high temperature grade capable of 200°C conditions without loss of magnetization.

   4) Compliance with NEMA MG 1 part 31 standards for definite-purpose inverter-fed motors suitable for 2000 volt peak at 10,000 volt per microsecond.

d. Components

   1) Bearing isolator (seal) on motor shaft provided with shaft grounding device, utilizing two carbon grounding brushes to eliminate bearing currents.

   2) Salient pole permanent magnet design rotor resulting in no I^2R losses.

   3) Stator consisting of low-loss C5a coated electrical steel.

   4) Integral stator cooling fins, not a shaft mounted fan, for controlling rotor and stator temperatures during operation.

   5) Class H insulation system rated at 1850 Volts peak, and thermally-rated wire when tested per ASTM D-2307 for 600,000 hours extrapolated life at 155°C minimum.

   6) Shaft sealed by three O-rings, with two conductive O-rings to properly ground the bearing, eliminating damaging currents in the bearings.

   7) Oversized conduit box with provisions for grounding inside.

   8) Integral condensate drain system.

   9) Three normally closed thermostats, one per phase.

   10) Open ball bearings with a minimum L10 life of 100,000 hours.

   11) Bearings sized to handle unbalanced loads based on an ISO Balance Grade of 6.3.

   12) Re-greaseable bearing system including stainless steel inlet fitting and grease drain provided with square stainless-steel square head pipe plugs.

   13) E-coat primer on cast iron parts prior to application of top coat.

   14) Enhanced cooling tower duty paint that withstands 1000 hour salt fog test.

----- ALTERNATE Belt Drive -----

2. Belt Drive: Designed for minimum 150 percent motor nameplate power. Fan and motor sheave(s) will be fabricated from corrosion-resistant materials to minimize maintenance and ensure maximum drive and powerband operating life. Bearings must have a minimum L-10 life of 80,000 hours per ABMA STD 11. Belt tension must be easily adjusted in the field.

   (Optional) Extended Grease Fittings: Extended grease lines are supplied that reach from the bearing to fittings on the exterior casing near the access doors. This facilitates easy periodic bearing maintenance without entering the tower.

   ----- ALTERNATE for BALTIGUARD™ Fan System-----

3. Two single speed fan motors, one sized for full speed and load, the other sized for 2/3 speed, and approximately 1/3 the full load horsepower, will be provided for capacity control and stand-by protection from drive or motor failure. Two-speed motor(s) are not an acceptable alternative. Fan and motor sheave(s) will be fabricated from corrosion-resistant materials to minimize maintenance and ensure maximum drive and powerband operating life. Bearings must have a minimum L-10 life of 80,000 hours per ABMA STD 11. Belt tension must be easily adjusted in the field.

   ----- ALTERNATE Internal Gear Drive -----

4. Gear Drive with Internal Motor: Industrial duty, right angle gear designed in accordance with CTI STD-111. Gear must be rated for service factor of 2.0 with forward and reverse operation. Oil level fill port and sight glass are located on the gear. Gear connected to motor by flexible coupling.

   ----- ALTERNATE External Gear Drive -----

5. Gear Drive with External Motor: Industrial duty, right angle gear designed in accordance with CTI STD-111. Gear must be rated for service factor of 2.0 with forward and reverse operation. Oil level fill port and sight glass are located on the gear. Gear connected to motor with a drive shaft.

H. Fan Guard:

   1. Welded steel rod and wire guard, hot dipped galvanized after fabrication. Installed over fan discharge.

      -----ALTERNATE for stainless steel fan guard-----

   2. Welded stainless steel rod and wire guard, placed over fan discharge.

I. (Optional) Motor Removal Davit: The unit will be equipped with a mechanical equipment removal davit. The motor will lower from the mechanical equipment supports down to grade. Davit will attach to the unit without the need for tools. If tools are required for davit installation or removal, provide (1) davit for each motor provided.

J. Gravity-fed Distribution: Hot water basins will have removable covers for inspection while unit is in operation, weir dams and metering nozzles for at least 50 percent turndown capability. Gravity flow nozzles will be snap-in type for easy removal. Pressurized nozzles are not acceptable.

K. (Optional) Balancing Valves: Heavy-duty butterfly valves will be provided at the hot water inlet connections. These valves will include cast iron bodies, elastomer seat and steel operating lever.

-----Optional EASY CONNECT Single Inlet-----

L. Single Inlet Connection: Each tower cell will be furnished with a single water inlet connection complete with the means to automatically balance flow rates to the hot water basins.

(Optional Drain Valve on EASY CONNECT): The factory-supplied internal piping will include a manual drain valve positioned to drain the piping during shutdown to reduce risk of freezing.

M. Fill:

1. The fill and integral drift eliminators will be formed from self-extinguishing (per ASTM-568) polyvinyl chloride (PVC) having a flame spread rating of 5 per ASTM E84 and will be impervious to rot, decay, fungus and biological attack. The fill is suitable for entering water temperatures up to and including 130°F (54.4°C). The fill must be manufactured, tested and rated by the cooling tower manufacturer and are elevated above the cold water basin floor to facilitate cleaning. If louvers are attached to fill, a spare set of fill sheets are required in case of icing and scaling damage.

----ALTERNATE for High-Temp Fill----

2. The fill and integral drift eliminators will be formed from self-extinguishing (per ASTM-568) chlorinated polyvinyl chloride (CPVC) having a flame spread rating of 5 per ASTM E84 and will be impervious to rot, decay, fungus and biological attack. The fill is suitable for entering water temperatures up to and including 140°F (60.0°C). The fill must be manufactured, tested and rated by the cooling tower manufacturer and are elevated above the cold water basin floor to facilitate cleaning. If louvers are attached to fill, a spare set of fill sheets are required in case of premature icing and scaling.

N. Drift Eliminators: Three-pass design made of PVC material. Primary eliminators will be integrated into the fill media.

O. Basin Water Level Control:

1. Corrosion resistant PVC make-up valve with plastic float for easy adjustment of operating water level.

----- ALTERNATE for Electric Water Level Controller-----

2. Electric water level control with NEMA 4 enclosure, solid state controls, LED status light, and stainless steel water level sensing electrodes. Number and position of probes provided to sense the following: high water level, low water level, high water alarm level, low water alarm level, heater safety cutout, and automatic solenoid valve. Include all necessary mounting hardware.

2.04 **ACCESSORIES**

A. (Optional) Electric Immersion Heaters: In pan suitable to maintain temperature of water in pan at 40 degrees F (4.4 degrees C) when outside temperature is 0 degrees F (-17.7 degrees C) [OR -20 degrees F (-28.9 degrees C)] and wind velocity is 15 mph (25 kph); immersion thermostat and float control operate heaters on low temperature when the pan is filled. Heaters will be constructed of copper.

B. (Optional) Basin Sweeper Piping: The cold water basin of the cooling tower will be equipped with PVC sump sweeper piping with plastic eductor nozzles. The piping must be designed specifically for the size and shape of the basin to ensure full agitation.

C. (Optional) Fan Cylinder Extension: To extend the height of the tower equal to the surrounding enclosure, the cooling tower will be provided with _____inches (mm) of fan cylinder extension. The fan cylinder extension will match the construction of the fan deck.

D. (Optional) Vibration Switch

1. Provide a mechanical local reset vibration switch. The mechanical vibration cutout switch will be guaranteed to trip at a point so as not to cause damage to the cooling tower. To ensure this, the trip point will be set in a frequency range of 0 to 3,600 RPM and a trip point of 0.2 to 2.0 g's.

2. (ALTERNATE) Provide an electronic remote reset vibration switch with contact for BAS monitoring. Wiring will be by the installing contractor. The electronic vibration cutout switch will be set to trip at a point so as not to cause damage to the cooling tower. To ensure this, the trip point will be set in a frequency range of 2 to 1000 Hertz and a trip point of 0.45 in/sec (0.0114 m/sec).

E. Access Packages: See submittal documents for access package requirements. Platforms and ladders must ship assembled from cooling tower manufacturer.

1. Plenum Access: Two hinged access doors must be provided for access into the plenum section. Include an internal walkway for inspection and maintenance. All working surfaces will be able to withstand 50 psf (244 kg/m²) live load or 200 pound (90.7 kg) concentrated load. Other components of the cooling tower, i.e. basin and fill/drift eliminators, will not be considered an internal working surface. Cooling tower designs that utilize these surfaces as working platforms will not be acceptable. Cooling tower manufacturers that promote these surfaces to be used as a working platform will provide a two-year extended warranty to the Owner to repair any damage to these surfaces caused during routine maintenance.

2. (Optional) Fan Deck Ladder with Handrails: A ladder with steel safety cage and safety gate will be provided for access to the fan deck. Access door or service platforms are not acceptable. 1-1/4 inch (32 mm) galvanized steel pipe handrail will be provided around the perimeter of the cooling tower cells. The handrails will be provided with knee and toe rails and will conform to OSHA requirements applicable at the time of shipment. To comply with OSHA 1910.28(b)(9), fan deck ladders exceeding 24' in total length must be designed to accept a ladder safety system. A ladder safety cage is not an acceptable alternative to a ladder safety system and will not be provided on ladders exceeding 24' in total length.

3. (Optional) Louver Face External Platforms: Easy access to the hot water basins for inspection of spray water distribution, even during tower operation, will be provided by external platforms at the louver face. Fan deck ladders and handrails, which add to the overall height of the tower, are not acceptable. Platforms and ladders must ship assembled from cooling tower manufacturer. To comply with OSHA 1910.28(b)(9), louver face external platform ladders exceeding 24' in total length must be designed to accept a ladder safety system. A ladder safety cage is not an acceptable alternative to a ladder safety system and will not be provided on ladders exceeding 24' in total length.

4. (Optional. Available on Double Height Models) Internal Service Platform: An internal platform will be provided in the plenum section to provide for inspection and maintenance of internal components and drive system. All working surfaces will be able to withstand 50 psf (244 kg/m^2) live load or 200 pound (90.7 kg) concentrated load. Platforms and ladders must ship assembled from cooling tower manufacturer.

5. (Optional) Access Door Platform: An external galvanized steel access platform at the access door of the unit(s) provides access to the spray distribution system or internal plenum. An aluminum ladder and 1-1/4 inch (32 mm) galvanized steel pipe safety railing is included with the platform. This option meets pertinent OSHA standards. Platforms and ladders must ship assembled from cooling tower manufacturer.

6. (Optional) Safety Gates: All handrail access openings will be provided with a self-closing safety gate for increased safety.

F. (Optional) Sound Attenuation:

1. Discharge Sound Attenuation: The unit will be equipped with straight discharge attenuation with sound absorbing fiberglass acoustical baffles to reduce sound levels from the top of the unit.

2. Intake Sound Attenuation: The unit will be equipped with attenuation at the unit's air intake. Sound absorbing fiberglass acoustical baffles will reduce sound levels from the air intake side of the unit.

G. (Optional) Velocity Recovery Stacks: A conical shaped fan cowl extension will be provided that allows for increased cooling tower performance. Increase in thermal performance must be certified per CTI STD 201. VR stack material of construction will match unit.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide the services of the manufacturer's field representative to supervise rigging, hoisting, and installation, allowing for minimum of one eight-hour day per tower.

C. Install tower on structural steel beams as instructed by manufacturer.

D. Connect condenser water piping to tower. Pitch condenser water supply to tower and condenser water suction away from tower.

E. Connect make-up water piping to tower. Pitch to tower.

F. Connect overflow and drain to acceptable discharge point as required by jurisdiction.

3.02 FIELD QUALITY CONTROL

A. See Section Quality Requirements, for additional requirements.

B. Provide the services of the manufacturer's field representative to inspect tower after installation and submit report prior to start-up, verifying installation is in accordance with specifications and manufacturer's recommendations.

3.03 SYSTEM START-UP

A. Start-up tower in presence of and instruct Owner's operating personnel.

3.04 SCHEDULES

A. Cooling Towers

1. Drawing Code:

2. Location:

3. Manufacturer:

4. Model Number:

5. Cooling Capacity

a. Water Flow Rate:

b. Entering Water Temperature:

c. Leaving Water Temperature:

6. Entering Air WB Temperature:

7. Number of Fan Motors:

8. Motor Size: [_____] HP
9. Motor Electrical Characteristics: [_____] Volts, Three-Phase, 60 Hz.
10. Basin Heaters No. and Type:

END OF SECTION