



# WAKE COUNTY PUBLIC SCHOOL SYSTEM

WCPSS Purchasing Dept.  
1551 Rock Quarry Rd – Bldg. F  
Raleigh, NC 27610

## Request For Proposal

# # 251-25-196

Proposals will be due: **AUGUST 26, 2024 2:00PM**

Contract Type:

COMMODITY PURCHASE

Refer ALL Inquiries in email form to: Jim Jaeger

Commodity:

## CHILLER REPLACEMENT UNIT – YATES MILL E.S.

Buyer E-Mail: [jjjaeger@wcpss.net](mailto:jjjaeger@wcpss.net)

Using Agency Name: **WAKE COUNTY PUBLIC SCHOOL SYSTEM**

Pre-Proposal Meeting: **N/A**

### NOTICE TO VENDORS

**Sealed Proposals**, subject to the conditions made a part hereof, **will be received at this office** (1551 Rock Quarry Road, Bldg. F, Raleigh, NC) until **2:00 p.m.** on the day of opening and then publicly opened, for furnishing and delivering the commodity/service as described herein. Refer to page 2 for proper mailing instructions.

Proposals submitted via Email or facsimile (FAX) machine in response to this Request for Proposals **WILL NOT** be acceptable. Proposals are subject to rejection unless submitted on this form.

### EXECUTION

In compliance with this request for Proposals, and subject to all the conditions herein, the undersigned offers and agrees to furnish and deliver any or all items upon which prices are proposed, at the prices set opposite each item within the time specified herein. By executing this proposal, I certify that this proposal is submitted competitively and without collusion.

**Failure to execute/sign proposal prior to submittal may render bid invalid. Late proposals are not acceptable.**

VENDOR:		FEDERAL ID OR SOCIAL SECURITY NO.	
STREET ADDRESS:		P.O. BOX:	ZIP:
CITY & STATE & ZIP:		TELEPHONE NUMBER:	TOLL FREE TEL. NO (800)
PRINCIPAL PLACE OF BUSINESS ADDRESS IF DIFFERENT FROM ABOVE			
TYPE OR PRINT NAME & TITLE OF PERSON SIGNING:		FAX NUMBER:	
AUTHORIZED SIGNATURE:	DATE:	E-MAIL:	

Offer valid for 60 days from date of proposal opening unless otherwise stated here: \_\_\_\_ days Prompt Payment Discount:  
\_\_\_\_ % \_\_\_\_ days.

Submit one (1) signed, original executed proposal response, along with one (1) photocopy and 1 electronic copy (flashdrive) if possible, (emails not accepted) of your proposal simultaneously to the address identified above. Clearly mark each package with: (1) Vendor name; (2) the RFP number; and (3) the due date and (4) buyer name. Address the package(s) for delivery as shown in the table above. If Vendor is submitting more than one (1) proposal, each proposal shall be submitted in separate envelopes and marked accordingly. For delivery purposes, separate envelopes from a single Vendor may be included in the same outer package. Proposals are subject to rejection unless submitted with the information above included on the outside of the proposal package.

**MAILING INSTRUCTIONS:** Mail/Courier only as specified above, unless otherwise instructed, and only one proposal package with copies per envelope. Address envelope and include proposal number as shown below. It is the responsibility of the Vendor to have the proposal in this office by the specified time and date of opening.

<b><u>DELIVER SEALED PROPOSAL TO: ATTN: JIM JAEGER</u></b>	
<b>PROPOSAL NO.</b>	<b>RFP 251-25-196</b>
<b>Wake County Public School System</b>	
<b>Purchasing Department</b>	
<b>1551 Rock Quarry Road – Bldg. F</b>	
<b>Raleigh NC 27610-4145</b>	

**RFP SCHEDULE**

The table below shows the *intended* schedule for this RFP. WCPSS will make every effort to adhere to this schedule.

Event	Responsibility	Date and Time	
Issue RFP	WCPSS	AUGUST 12, 2024	by 5:00 p.m.
Questions submitted to: jjaeger@wcpss.net (Reference RFP # in subject line)	Vendor/WCPSS	AUGUST 16, 2024	by 5:00 p.m.
Response to Questions Posted to Websites	WCPSS	AUGUST 19, 2024	by 5:00 p.m.
Submit <u>SEALED</u> Proposal Deadline and Public Bid Opening (At above location)	Vendor/WCPSS	Due: AUGUST 26, 2024	2:00 P.M ET

**PROPOSAL QUESTIONS**

**RFP Questions must be emailed to: jjaeger@wcpss.net**

Upon review of the RFP documents, Vendors may have questions to clarify or interpret the RFP in order to submit the best proposal possible. To accommodate the Proposal Questions process, Vendors shall submit any such questions, in written form by the above due date. WCPSS will not respond to questions via telephone or telephone message(s). Written questions shall be emailed to at date and time specified above. Vendors should enter “RFP Number Questions” as the subject for the email. Questions submittals should include a reference to the applicable RFP section and be submitted in a format shown as follows:

Reference	Vendor Question
RFP Section, Page Number	Vendor question ...?

Questions received prior to the submission deadline date, WCPSS’ response, and any additional terms deemed necessary by WCPSS will be posted in the form of an addendum to the NC Interactive Purchasing System (eVP), and WCPSS Purchasing website, and shall become an Addendum to this RFP. No information, instruction or advice provided orally or informally by any WCPSS personnel, whether made in response to a question or otherwise in connection with this RFP, shall be considered authoritative or binding. Vendors shall rely *only* on written material contained in an Addendum to this RFP.

## Qualifications

Bidder is duly qualified to do business in North Carolina.

Bidding vendor must be a Manufacturer's full-service distributor. No RFQ's from third party brokers will be accepted. Any new bidding vendor to WCPSS should include information on being an authorized vendor for the manufacturer.

Insurance requirements referenced within as well as any Federal, State and Local requirements shall be required and maintained.

Demonstrated experience in providing performing similar projects. (Service)

Experience with the material supply referenced in this RFP. (Commodity)

Submissions must meet the provided specifications.

Vendor will be disqualified for consideration if they are listed on either the State of North Carolina debarred vendor registry or the Federal Government debarred vendor registry. (Federal Government) <https://www.sam.gov/SAM/pages/public/searchRecords/searchResults.jsf> (State of North Carolina) <https://ncadmin.nc.gov/documents/nc-debarred-vendors>

## Proposal Evaluation

All proposals will be evaluated by representatives of WCPSS. WCPSS may, at its sole discretion, ask for additional clarifying information.

WCPSS is expected to make any final selection(s) based upon any factors or considerations WCPSS deems relevant. Factors often considered include: fee, qualifications, relevant experience, specifications met, and ability to provide commodity and/or perform work in a timely manner. WCPSS retains sole discretion to award the contract to the vendor(s) it believes will best serve the interests of WCPSS and may consider any factors, documents, or information it deems relevant in making that determination.

Vendors are subject to *immediate disqualification* at any stage of the selection process for any of the following:

- The submission of false or misleading information in the vendor's proposal.
- Any efforts to dissuade or discourage other vendors from submitting proposals.
- Any efforts to influence, dictate, or change the terms of another vendor's proposal.
- Any form of bid collusion or bid rigging.

## ETHICS AND THE PURCHASING FUNCTION *Policy Code: 6401/9100*

The Wake County Board of Education is committed to conducting the purchasing function in an ethical manner and in compliance with state and federal laws and regulations. The Board expects all employees who are directly or indirectly involved in any aspect of the purchasing function to be aware of and comply with all current state and federal laws and regulations as these standards apply to the school system's purchasing activities. The Board's purchasing goals and principles will not be compromised by individuals motivated by personal gain.

Employees directly or indirectly involved in any aspect of the school system's procurement, purchasing, and/or contracting process for apparatus, materials, equipment, supplies, services, real property, or construction or repair projects, regardless of source of funds, must adhere to the following standards of conduct and those established in any policies regarding employee conflict of interest and 8305: Federal Grant Administration.

1. Employees are expected to make all purchasing-related decisions in a neutral and objective way based on what is in the best interest of the school system and not in consideration of actual or potential personal benefit.
2. Employees shall not participate, directly or indirectly, in making or administering any contract from which they will obtain a direct benefit, unless an exception is allowed pursuant to law.

An employee obtains a direct benefit when the employee or his or her spouse will receive income, commission, or property under the contract, or the employee or spouse has more than a 10 percent interest in an entity that is a party to the contract. See G.S. 14-234 and any policies regarding employee conflict of interest. Participation in making or administering a contract includes, but is not limited to, participating in the development of specifications or contract terms; obtaining or reviewing bids; preparation or award of the contract; and having the authority to make decisions about, interpret, or oversee the contract.

3. Employees shall not participate, directly or indirectly, in the selection, award, or administration of a contract supported in whole or part by a federal grant or award if the employee has a real or apparent conflict of interest. See 2 C.F.R. 200.318 and policy 8305: Federal Grant Administration.

A real or apparent conflict exists when the employee, his or her immediate family member or partner, or an organization which employs or is about to employ any of those individuals, has a financial or other interest in or receives a tangible personal benefit from a firm considered for a contract. For purposes of this subsection, a "financial interest" means a financial interest which comprises more than five percent of the equity of the firm or business or more than five percent of the assets of the economic interest in indebtedness. It does not include an ownership interest held through a fiduciary, such as *Policy Code: 6401/9100* a mutual fund or blind trust, where the individual or individual's employer has no control over the selection of holdings.

4. Employees shall not influence or attempt to influence any person involved in making or administering a contract from which the employee will obtain a direct benefit as described in paragraph 2, above.
5. Employees shall not solicit or receive any gift, favor, reward, service, or promise of reward, including a promise of future employment, in exchange for recommending, influencing, or attempting to influence the award of a contract by the school system.
6. Employees shall notify the superintendent or designee in writing if they have an actual or potential conflict of interest under this policy or applicable state or federal law that would disqualify them from performing any aspect of their job responsibilities.
7. Employees shall not solicit or accept trips, meals, gratuities, gifts, favors, or anything of monetary value from current or recent (within the past year) contractors, subcontractors, or suppliers, or any persons or entities that foreseeably may bid on a contract in the future, unless the item is an unsolicited gift of nominal value (\$50 or less), and is one of the following: an advertising item or souvenir that is widely distributed; an honorarium for participating in a meeting; a meal provided at a banquet; or other item that is clearly permitted by state and federal law. Multiple permitted items from a single contractor may not exceed an aggregate value of \$100 in a twelve-month period.

Employees shall inform existing and potential contractors, subcontractors, and suppliers about these restrictions.

8. Employees shall not solicit or accept any gift from a current or potential provider of E-rate services or products in violation of applicable federal E-rate program gifting rules.
9. Employees shall not divulge confidential information to any unauthorized person. Confidential information includes but is not limited to (1) the school system's cost estimate for any public contract, prior to bidding or completion of other competitive purchasing processes; and (2) the identity of contractors who have obtained proposals for bid purposes for a public contract, until the bids are opened in public and recorded in the Board minutes.
10. An employee shall not misuse information in violation of G.S. 14-234.1. Specifically, an employee shall not, in contemplation of the employee's own official action or that of the Board or others acting on behalf of the school system, or in reliance on information known to the employee in his or her official capacity and not made public, to: a. acquire a financial interest in any property, transaction, or enterprise; b. gain a financial benefit that may be affected by the information or contemplated action; or c. intentionally aid another to acquire a financial interest or gain a financial benefit from the information or contemplated action.

The superintendent or designee shall ensure that all affected personnel are aware of Board policy requirements and applicable laws. Any individual aware of any violation of this policy, policy 2121: Board Member Conflict of Interest, any policies regarding employee conflict of interest, the conflict-of-interest provisions of policy 8305: Federal Grant Administration, or applicable conflict of interest laws shall report such violation in accordance with policy 1760/7280: Prohibition Against Retaliation. Employees who violate this policy, policy 2121, any policies regarding employee conflict of interest, or the conflict-of-interest provisions of policy 8305, will be subject to disciplinary action.

Legal References: 2 C.F.R. 200.318(c); 47 C.F.R. 54.503; FCC Sixth Report and Order 10-175; G.S. 14-234, -234.1; 133-32, -33; Attorney General Opinion requested by L.W. Lamar regarding G.S. 133-32, the Applicability to Attorneys and Law Firms Providing Professional Services to Local Boards of Education, dated May 13, 1993.

## TERMS AND CONDITIONS

1. **READ, REVIEW AND COMPLY:** It shall be the bidder's responsibility to read this entire document, review all enclosures and attachments, and comply with all requirements specified herein.
2. **NOTICE TO BIDDERS:** All bids are subject to the provisions of special terms and conditions specific to this Invitation for Bids, the specifications. Wake County Public School System (WCPSS) objects to and will not evaluate or consider any additional terms and conditions submitted with a bidder response. This applies to any language appearing in or attached to the document as part of the bidder's response. **DO NOT ATTACH ANY ADDITIONAL TERMS AND CONDITIONS.**  
By execution and delivery of this document, the bidder agrees that any additional terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect.
3. **DEFINITIONS:**
  - **BIDDER:** Company, firm, corporation, partnership, individual, etc., submitting a response to an Invitation for Bids.
  - **TERM CONTRACT:** A contract generally intended to cover all normal requirements for a commodity for a specified period of time based on estimated quantities only.
  - **OPEN MARKET CONTRACT:** A contract for the purchase of a commodity not covered by a term contract.
4. **EXECUTION:** Failure to sign under EXECUTION section will render bid invalid.
5. **ORDER OF PRECEDENCE:** In cases of conflict between specific provisions in this bid, the order of precedence shall be (1) special terms and conditions specific to this bid, (2) specifications, and (3) Instructions to Bidders.
6. **TIME FOR CONSIDERATION:** Unless otherwise indicated on the first page of this document, bidder's offer shall be valid for 45 days from the date of bid opening. Preference may be given to bids allowing not less than 45 days for consideration and acceptance.
7. **SPECIFICATIONS:** Any deviation from specifications indicated herein must be clearly pointed out; otherwise, it will be considered that items offered are in strict compliance with these specifications, and bidder will be held responsible, therefore. Deviations shall be explained in detail. **The bidder shall not construe this paragraph as inviting deviation or implying that any deviation will be acceptable.**
8. **INFORMATION AND DESCRIPTIVE LITERATURE:** Bidder is to furnish all information requested and, in the spaces, provided in this document. Further, if required elsewhere in this bid, each bidder must submit with their bid sketches, descriptive literature and/or complete specifications covering the products offered. Reference to literature submitted with a previous bid will not satisfy this provision. Bids which do not comply with these requirements will be subject to rejection.
9. **RECYCLING AND SOURCE REDUCTION:** It is the policy of WCPSS to encourage and promote the purchase of products with recycled content to the extent economically practicable, and to purchase items which are reusable, refillable, repairable, more durable, and less toxic to the extent that the purchase or use is practicable and cost-effective.  
We also encourage and promote using minimal packaging and the use of recycled/recyclable products in the packaging of commodities purchased. However, no sacrifice in quality of packaging will be acceptable. The company remains responsible for providing packaging that will protect the commodity and contain it for its intended use.  
Companies are strongly urged to bring to the attention of WCPSS which issued the solicitation document, those products or packaging they offer which have recycled content and that are recyclable.
10. **CLARIFICATIONS/INTERPRETATIONS:** Any and all questions regarding this document must be addressed to the purchaser named on the cover sheet of this document. Do not contact the school or department directly. Any and all revisions to this document shall be made only by written addendum from WCPSS Purchasing Department. The bidder is cautioned that the requirements of this bid can be altered only by written addendum and that verbal communications from whatever source are of no effect.
11. **ACCEPTANCE AND REJECTION:** WCPSS reserves the right to reject any and all bids, to waive any informality in bids and, unless otherwise specified by the bidder, to accept any item in the bid. If either a unit price or extended price is obviously in error and the other is obviously correct, the incorrect price will be disregarded.
12. **REFERENCES:** WCPSS reserves the right to require a list of users of the exact item offered. WCPSS may contact these users to determine acceptability of the bid. Such information may be considered in the evaluation of the bid.
13. **AWARD OF CONTRACT:** As directed by statute, qualified bids will be evaluated and acceptance may be made of the lowest and best bid most advantageous to WCPSS as determined upon consideration of such factors as: prices offered; the quality of the articles offered; the general reputation and performance capabilities of the bidders; the substantial conformity with the specifications and other conditions set forth in the bid; the suitability of the articles for the intended use; the related services needed; the date or dates of delivery and performance; and such other factors deemed by WCPSS to be pertinent or peculiar to the purchase in question. Unless otherwise specified by WCPSS or the bidder, WCPSS reserves the right to accept any item or group of items on a multi-item bid. WCPSS also reserves the right to reject any and all bids. In addition, on TERM CONTRACTS, WCPSS reserves the right to make partial, progressive, or multiple awards: where it is advantageous to award separately by items; or where more than one supplier is needed to provide the contemplated requirements as to quantity, quality, delivery, service, geographical areas; other factors deemed by WCPSS to be pertinent or peculiar to the purchase in question.
14. **HISTORICALLY UNDERUTILIZED BUSINESSES:** Pursuant to General Statute 143-48 and Executive Order #150, WCPSS invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled.

15. **CONFIDENTIAL INFORMATION:** As provided by statute and rule, WCPSS will consider keeping trade secrets which the bidder does not wish disclosed confidential. Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL" by the bidder. Cost information shall not be deemed confidential. In spite of what is labeled as a trade secret, the determination whether it is or not will be determined by North Carolina law.
16. **SAMPLES:** Sample of items, when required, must be furnished as stipulated herein, free of expense, and if not destroyed will, upon request be returned at the bidder's expense. Request for the return of samples must be made within 10 days following date of bid opening. Otherwise, the samples will become WCPSS property. Each individual sample must be labeled with the bidder's name, bid number, and item number. A sample on which an award is made, will be retained until the contract is completed, and then returned, if requested, as specified above.
17. **AWARD PROCEDURES:** Contract award notice shall be posted on WCPSS website. Contract award notices are sent **only** to those actually awarded contracts, and not to every person or firm responding to this solicitation.
18. **RECIPROCAL PREFERENCE:** G.S. 143-59 establishes a reciprocal preference law to discourage other states from applying in-state preferences against North Carolina's resident bidders. The "Principal Place of Business" is defined as the principal place from which the trade or business of the bidder is directed or managed.
19. **DEFAULT AND PERFORMANCE BOND:** In case of default by the contractor, WCPSS may procure the articles or services from other sources and hold the contractor responsible for any excess cost occasioned thereby. WCPSS reserves the right to require performance bond or other acceptable alternative guarantees from successful bidder without expense to WCPSS.
20. **GOVERNMENTAL RESTRICTIONS:** In the event any Governmental restrictions are imposed which necessitate alteration of the material, quality, workmanship, or performance of the items offered prior to their delivery, it shall be the responsibility of the contractor to notify in writing WCPSS, indicating the specific regulation which required such alterations. WCPSS reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the contract.
21. **TAXES:** Any applicable taxes shall be invoiced as a separate item.  
G.S. 143-59.1 bars the WCPSS from entering into contracts with vendors if the vendor or its affiliates meet one of the conditions of G. S. 105-164.8(b) and refuse to collect use tax on sales of tangible personal property to purchasers in North Carolina. Conditions under G. S. 105-164.8(b) include: (1) Maintenance of a retail establishment or office, (2) Presence of representatives in the State that solicit sales or transact business on behalf of the vendor and (3) Systematic exploitation of the market by media-assisted, media-facilitated, or media-solicited means. By execution of the bid document the vendor certifies that it and all of its affiliates (if it has affiliates) collect(s) the appropriate taxes.
22. **SITUS:** The place of this contract, its situs and forum, shall be Wake County, North Carolina, where all matters, whether sounding in contract or tort, relating to its validity, construction, interpretation, and enforcement shall be determined.
23. **GOVERNING LAWS:** This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.
24. **INSPECTION AT CONTRACTOR'S SITE:** WCPSS reserves the right to inspect, at a reasonable time, the equipment/item, plant or other facilities of a prospective contractor prior to contract award, and during the contract term as necessary for WCPSS determination that such equipment/item, plant or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract.
25. **PAYMENT TERMS:** Payment terms are Net not later than 30 days after receipt of correct invoice or acceptance of goods, whichever is later. Payment may be made by procurement card, and it shall be accepted by the contractor for payment if the contractor accepts that card (Visa, MasterCard, etc.) from other customers.
26. **CONDITION AND PACKAGING:** Unless otherwise provided by special terms and conditions or specifications, it is understood and agreed that any item offered or shipped has not been sold or used for any purpose and shall be in first class condition. All containers/packaging shall be suitable for handling, storage, or shipment.
27. **STANDARDS:** All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate state inspector which customarily requires the label or re-examination listing or identification marking of the appropriate safety standard organization; such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and /or National Electrical Manufacturers' Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and state and federal requirements relating to clean air and water pollution.
28. **PATENT:** The contractor shall hold and save WCPSS, its officers, agents, and employees, harmless from liability of any kind, including costs and expenses, on account of any confidential information, copyrighted material, patented or unpatented invention, articles, device or appliance manufactured or used in the performance of this contract, including use by WCPSS or disclosure of any information pursuant to the NC Public Records Act.
29. **ASSIGNMENT:** No assignment of the contractor's obligations nor the contractor's right to receive payment hereunder shall be permitted. However, upon written request approved by the purchasing department and solely as a convenience to the contractor, WCPSS may:
  - a. Forward the contractor's payment check directly to any person or entity designated by the contractor, and
  - b. Include any person or entity designated by contractor as a joint payee on the contractor's payment check.

In no event shall such approval and action obligate WCPSS to anyone other than the contractor and the contractor shall remain responsible for fulfillment of all contract obligations.

30. **INSURANCE:**

- a. **Commercial General Liability:** The Vendor shall procure insurance coverage for direct operations, contractual liability and completed operations with limits not less than those stated below:

	Occurrence:
General Aggregate	\$2,000,000
Premises Operations	\$1,000,000
Personal & Advertising Injury	\$1,000,000
Medical Expense (any one person)	\$5,000

- b. **Comprehensive Automobile Liability Insurance**, including coverage for owned, hired, and non-owned vehicles: A Combined Single Limit for bodily injury and property damage limit of not less than \$2,000,000; and \$2,000 medical payments.
- c. **Worker's Compensation** including Occupational Disease and Employer's Liability Insurance.

Part A: Worker's Compensation Coverage – Statutory Limits as required by state of North Carolina Worker's Compensation laws.

Part B: Employer's Liability:

Bodily Injury by Accident: \$500,000 each accident  
Bodily Injury by Disease: \$500,000 each employee  
Bodily Injury by Disease: \$500,000 Policy Limit

- d. **Professional Liability Insurance (PL)/Errors and Omissions (E&O)** – Required for any services involving professional services such as architectural and or engineering services. May include malpractice insurance if medical or mental health services are provided. Minimum Limit requirements \$1,000,000
- e. **Sexual Misconduct Insurance (SML)/Sexual Abuse/Molestation** - Required for any provider services when alone with students. Covers allegations of sexual abuse by policyholder and those employed by them, whether founded or unfounded. Minimum Limit requirements 1,000,000.
- f. **Cyber Liability:** Required for any activity involving personal identifiable information or software applications. Minimum Limit requirements \$1,000,000 up to \$5,000,000.
- g. Other types of appropriate insurance may be required depending upon scope of services provided. Examples are aviation liability, pollution liability, crime, employee dishonesty/directors and officers.
- h. **Certificates of Insurance** acceptable to WCPSS shall be filed with WCPSS prior to commencement of the Work. These Certificates shall contain a provision that coverage afforded under the policies will not be canceled until at least thirty (30) days' prior written notice has been given to WCPSS, and that the Wake County Board of Education is listed as additional insured on general liability and automobile liability.

The successful vendor agrees to hold harmless and indemnify the Wake County Board of Education (WCBOE) for any liability that may arise from the negligent or illegal acts of the vendor's employees or agents.

31. **GENERAL INDEMNITY:** The provider shall hold and save WCPSS, its officers, agents, and employees, harmless from liability of any kind, including all claims and losses, accruing or resulting to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation that may be injured or damaged by the provider in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of the provider. The provider represents and warrants that it shall make no claim of any kind or nature against WCPSS agents who are involved in the delivery or processing of contractor goods to WCPSS. The representation and warranty in the preceding sentence shall survive the termination or expiration of this contract.
32. **CANCELLATION (TERM CONTRACTS ONLY):** All contract obligations shall prevail for at least 180 days after the effective date of the contract. After that period, in addition to the provisions of the paragraph entitled Price Adjustments, for the protection of both parties, this contract may be canceled in whole or in part by either party by giving 30 days prior notice in writing to the other party.
33. **QUANTITIES (TERM CONTRACTS ONLY):** The award of a term contract neither implies nor guarantees any minimum or maximum purchases there under.
34. **PRICE ADJUSTMENTS (TERM CONTRACTS ONLY):** Any price changes, downward or upward, which might be permitted during the contract period must be general, either by reason of market change or on the part of the contractor to other customers.
- a. **Notification:** Must be given to WCPSS, in writing, concerning any proposed price adjustments. Such notification shall be accompanied by copy of manufacturer's official notice or other acceptable evidence that the change is general in nature.
- b. **Decreases:** WCPSS shall receive full proportionate benefit immediately at any time during the contract period. **Increases:** All prices shall be firm against any increase for 180 days from the effective date of the contract. After this period, a request for increase may be submitted with WCPSS reserving the right to accept or reject the increase or cancel the contract. Such action by WCPSS shall occur not later

than 15 days after the receipt by WCPSS of a properly documented request for price increase. Any increases accepted shall become effective not later than 30 days after the expiration of the original 15 days reserved to evaluate the request for increase.

35. **Invoices:** It is understood and agreed that orders will be shipped at the established contract prices in effect on dates orders are placed. Invoicing at variance with this provision will subject the contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate item.
36. **LUNS福德 ACT/CRIMINAL BACKGROUND CHECKS:** The Provider shall conduct at its own expense sexual offender registry checks on each of its employees, agents, ownership personnel, or contractors ("contractual personnel") who will engage in any service on or delivery of goods to school system property or at a school-system sponsored event. The checks shall include at a minimum check of the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry ("the Registries"). For the Provider's convenience only, all of the required registry checks may be completed at no cost by accessing the North Carolina Sex Offender Registry website at <http://sexoffender.ncdoj.gov/>. The Provider shall provide certification on Sexual Offender Registry Check Certification Form that the registry checks were conducted on each of its contractual personnel providing services or delivering goods under this Agreement prior to the commencement of such services or the delivery of such goods. The Provider shall conduct a current initial check of the registries (a check done more than 30 days prior to the date of this Agreement shall not satisfy this contractual obligation). In addition, Provider agrees to conduct the registry checks and provide a supplemental certification form before any additional contractual personnel are used to deliver goods or provide services pursuant to this Agreement. Provider further agrees to conduct annual registry checks of all contractual personnel and provide annual certifications at each anniversary date of this Agreement. Provider shall not assign any individual to deliver goods or provide services pursuant to this Agreement if said individual appears on any of the listed registries. Provider agrees that it will maintain all records and documents necessary to demonstrate that it has conducted a thorough check of the registries as to each contractual personnel and agrees to provide such records and documents to the school system upon request. Provider specifically acknowledges that the school system retains the right to audit these records to ensure compliance with this section at any time in the school system's sole discretion. Failure to comply with the terms of this provision shall be grounds for immediate termination of the Agreement. In addition, the school system may conduct additional criminal records checks at Provider's expense. If the school system exercises this right to conduct additional criminal records checks, Provider agrees to provide within seven (7) days of request the full name, date of birth, state of residency for the past ten years, and any additional information requested by the school system for all contractual personnel who may deliver goods or perform services under this Agreement. Provider further agrees that it has an ongoing obligation to provide the school system with the name of any new contractual personnel who may deliver goods or provide services under the Agreement. WCPSS reserves the right to prohibit any contractual personnel of Provider from delivering goods or providing services under this Agreement if WCPSS determines, in its sole discretion, that such contractual personnel may pose a threat to the safety or well-being of students, school personnel or others.
37. **ACCESS TO PERSONS AND RECORDS:** The State Auditor and the WCPSS internal auditors shall have access to persons and records as a result of all contracts or grants entered into by WCPSS in accordance with General Statute 147-64.7 and Session Law 2010-194, Section 21 (i.e., the State Auditors and WCPSS may audit the records of the contractor during the term of the contract to verify accounts and data affecting fees or performance).
38. **COMPLIANCE WITH E-VERIFY:** Provider shall comply with all applicable laws and regulations in providing services under this Contract. In particular, Provider shall not employ any individuals to provide services to the School System who are not authorized by federal law to work in the United States. Provider represents and warrants that it is aware of and in compliance with the Immigration Reform and Control Act and North Carolina law (Article 2 of Chapter 64 of the North Carolina General Statutes) requiring use of the E-Verify system for employers who employ twenty-five (25) or more employees and that it is and will remain in compliance with these laws at all times while providing services pursuant to this Contract. Provider shall also ensure that any of its subcontractors (of any tier) will remain in compliance with these laws at all times while providing subcontracted services in connection with this Contract.
39. **COMPLIANCE WITH AFFORDABLE CARE ACT:** Provider is responsible for providing affordable health care coverage to all of its full-time employees providing services to the School System. The definitions of "affordable coverage" and "full-time employee" are governed by the Affordable Care Act and accompanying IRS and Treasury Department regulations.
40. **RESTRICTED COMPANIES LIST:** Bidder represents that as of the date of this bid, Bidder is not included on the Final Divestment List created by the North Carolina State Treasurer pursuant to N.C. Gen. Stat. § 147-86.58. Bidder also represents that as of the date of this bid, Bidder is not included on the list of restricted companies determined to be engaged in a boycott of Israel created by the North Carolina State Treasurer pursuant to N.C. Gen. Stat. § 147-86.81.
41. **BUSINESS AUTHORIZATION:** Bidder is duly qualified to do business in North Carolina. If Bidder is a business entity that is not registered in North Carolina, prior to providing any products or beginning any services described by this bid, Bidder shall either (i) obtain a certificate of authority from the Secretary of State for North Carolina, pursuant to N. C. Gen. Stat. § 55-15-03, or (ii) provide a letter from an attorney indicating that the attorney has reviewed N. C. Gen. Stat. § 55-15-01 and determined that Bidder is not required to obtain a certificate of authority pursuant to N. C. Gen. Stat. § 55-15-01(b).

Rev. 1/2024





ADMINISTRATIVE SERVICES

1551 Rock QUARRY ROAD  
RALEIGH, NORTH CAROLINA 27610-4145  
PHONE: 919.694-8726  
EMAIL: PURCHASING@WCPSS.NET

**Minority, Women, Small Business Enterprise Information:**

Pursuant to WCPSS Board of Education policy and NC General Statutes, WCPSS invites and encourages participation in the procurement process by businesses owned by minorities, women, small business enterprise, disabled business enterprises and non-profit work centers for the blind and severely disabled. Parties are asked to complete the following information:

Check all that apply:

- ☐ Minority Owned Business
- ☐ Woman Owned Business
- ☐ Disabled Owned Business
- ☐ Small Business Enterprise

☐ Yes, I certify that that my company has been certified by the North Carolina Department of Administration (HUB Office) as a Historically Underutilized Business.

☐ No, my company has not yet received HUB or MWBE certification but meets the above criteria.

☐ No, my company is not a minority, woman, disabled owned or small business enterprise.

Bidding Company Name: \_\_\_\_\_

Date: \_\_\_\_\_ Signature Authorized Name: \_\_\_\_\_

Print Authorized Name: \_\_\_\_\_

**DELIVER SEALED VIA DELIVERY/COURIER TO:** Jim Jaeger

Due by: AUGUST 26, 2024 2:00 pm ET

RFP NO.: 251-25-196

Wake County Public School System

Purchasing Department

1551 Rock Quarry Rd. Bldg. F

Raleigh NC 27610-4145

Please provide a quote for the following items in the template below. This request is a purchase only request and all information should be included below. If allowed and you are quoting a substitute model, you must indicate such on your response and attach all specifications, drawings and information in order for the end user to compare and review. Quotes submitted without the proper documentation will not be considered. Any miscellaneous fees or charges for this quote must be listed below. Bidding vendor must be a Manufacturer's full-service distributor. No RFQ's from third party brokers will be accepted. Any new bidding vendor to WCPSS should include information on being an authorized vendor for the manufacturer.

Qty.	Description	Submissions must meet provided Specifications	Unit Price	TOTAL PRICE
1 EACH	Provide price for purchase of a <u>260 TON AIR COOLED SCREW CHILLER</u> as per attached Chiller Schedule, Specifications and Accessories. Price shall include weekend startup and all warranties as per the specifications.		\$	\$
<u>*IMPORTANT NOTES</u>	The basis of design is a: CARRIER 30XV2759S MUST SPECIFY DELIVERY ARO: _____		<u>IMPORTANT NOTE:</u>	<u>SPECIFICATION SHEETS MUST BE INCLUDED WITH YOUR RFP SUBMISSION</u>
<u>IMPORTANT *NOTE*</u>	<b>QUOTE DELIVERED PRICING</b>			
<u>VENDOR NOTE:</u>	<b>DELIVERED PRICE</b>			
	<u>IMPORTANT NOTE:</u> ALL BIDDING VENDORS MUST BE "FULL SERVICE DISTRIBUTORS" FOR THE ABOVE REQUESTED PRODUCTS. RFQ'S SUBMITTED FROM BROKERS, 3 <sup>rd</sup> PARTY AGENTS WILL NOT BE ACCEPTED. BIDDING COMPANIES MUST WORK DIRECTLY WITH THE MANUFACTURER. WITH A SUBMITTED RFQ TO WCPSS, DOCUMENTATION OF BEING AN AUTHORIZED MANUFACTURER VENDOR SHOULD BE PROVIDED, IF NOT CURRENTLY DOING BUSINESS WITH WCPSS. THE AWARDED VENDOR WILL BE EXPECTED TO PROVIDE THE ALL COMMODITIES IN A TIMELY MANNER, COORDINATE DELIVERY, HANDLE ANY AND ALL PRODUCT ISSUES RELATED TO ANY WCPSS ORDER RESULTING FROM THIS RFQ AWARD.			
	FOR: YMES (FAL)	SUBMISSIONS MUST MEET PROVIDED SPECIFICATIONS	<b>TOTAL:</b>	\$

Note: Please do not include Sales Tax in the above quote. WCPSS is not tax exempt. N.C. Sales Tax will be added automatically on the awarded purchase order.

Please State Availability: (Delivery availability ARO must be specified above)

DELIVERY DETAILS: TO BE COORDINATED WITH WCPSS M & O FAL DEPT. AND CONTRACTOR.

Any Misc. fees or charges must be specified above.

WCPSS reserves the right to amend quantities or cancel bid or an undelivered purchase order due to changes in funds availability

Bidding Company Name: \_\_\_\_\_ Date: \_\_\_\_\_

Company Rep (Print): \_\_\_\_\_ Signature: \_\_\_\_\_

# AIR-COOLED CHILLER SCHEDULE

SYMBOL	CAPACITY TONS REFR. ①	EVAPORATOR				AIR COOLED COND. ⑬	ELECTRICAL				MIN. EFFICIENCY ③	BASIS OF DESIGN ④		REMARKS
		ENT F	LWT F	GPM	MAX. PD		EAT F	VOLTAGE	MCA ②	MAX. FUSE	MIN. SHORT CIRCUIT/AIC RATING	FULL LOAD EER	PLV	
ACC-1	260.0	54	44	620	16.3 FT	95	460V-3ø	510.6	700	65,000	8.9	17.5	CARRIER 30XV27595	⑤⑥⑦⑧⑨⑩⑪⑫

- ① BASED ON 0.0001 EVAPORATOR FOULING FACTOR.
- ② MINIMUM CIRCUIT AMPACITY WITH SINGLE POINT POWER CONNECTION. IF REQUIRED, PROVIDE SEPARATE 115V-1ø POWER CONNECTION FOR HEATER CIRCUITS.
- ③ PER AHRI 550/590.
- ④ CHILLER PROVIDED BY OWNER INCLUDING FACTORY STARTUP. CONTRACTOR WILL COORDINATE AND RECEIVE CHILLER DIRECTLY FROM MANUFACTURER AND INSTALL COMPLETE.
- ⑤ SEE SPECIFICATION SECTION 236426 FOR CHILLER AND WARRANTY.
- ⑥ FACTORY FURNISHED WITH BACnet COMM CARD. CONTRACTOR TO ROUTE NEW BACnet COMM AND CONDUIT FROM BUILDING BAS FROM BUILDING TO CHILLER. COORDINATE WITH AND CONNECT TO SCHNEIDER NETWORK 8000 BAS.
- ⑦ ANALOG CHILLED WATER SETPOINT RESET.
- ⑧ FACTORY FURNISHED LOW SOUND OPTION INCLUDING COMPRESSOR BLANKETS.
- ⑨ SINGLE POINT POWER WITH VARIABLE SPEED DRIVE AND CONTROL POWER TRANSFORMER.
- ⑩ FACTORY FURNISHED WITH SECURITY GRILLES OVER COMPRESSOR ACCESS AREA, HAIL GUARDS OVER CONDENSER COILS, AND NEOPRENE VIBRATION PADS.
- ⑪ FACTORY FURNISHED WITH REFRIGERANT CIRCUIT SUCTION AND DISCHARGE SERVICE VALVES AND SUCTION LINE INSULATION.
- ⑫ CHILLER MAXIMUM LENGTH SHALL BE 35'-0".
- ⑬ WITH ALUMINUM FIN & COPPER TUBE CONDENSER COILS, MICROCHANNEL COILS ARE NOT ACCEPTABLE.

CHILLER BID DOCUMENT

**CHEATHAM AND ASSOCIATES, P.A.**

CONSULTING ENGINEERS

3412 ENTERPRISE DRIVE  
WILMINGTON, NORTH CAROLINA 28405  
PH: (910)452-4210 FAX: (910)452-4211  
E-MAIL: [info@cheathamassociates.com](mailto:info@cheathamassociates.com)  
NC LICENSE #C-10723

**YATES MILL ELEMENTARY SCHOOL**  
**CHILLER REPLACEMENT**

WAKE COUNTY PUBLIC SCHOOL SYSTEM  
RALEIGH, NORTH CAROLINA  
WCPSS PROJECT # XXX-XXXX/XXXX



DESIGNED BY KL

DRAWN BY KCL

CHECKED BY KL

TOR NUMBER 24063

SHEET

**M-1**

OF 1

DATE  
AUGUST 6, 2024

## SECTION 236426 - AIR-COOLED, ROTARY-SCREW WATER CHILLERS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes packaged, air-cooled, electric-motor-driven, rotary-screw water chillers.
- B. **Chillers are being purchased by WCPSS including delivery of chiller to site, warranty, and startup, with installation by a mechanical contractor under separate bid**

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include refrigerant, rated capacities, operating characteristics, and furnished specialties and accessories.
  - 2. Performance at AHRI standard conditions and at conditions indicated.
  - 3. Performance at AHRI standard unloading conditions.
  - 4. Minimum evaporator flow rate.
  - 5. Refrigerant capacity of water chiller.
  - 6. Oil capacity of water chiller.
  - 7. Fluid capacity of evaporator.
  - 8. Characteristics of safety relief valves.
- B. Shop Drawings: Complete set of manufacturer's prints of water chiller assemblies, control panels, sections and elevations, and unit isolation. Include the following:
  - 1. Assembled unit dimensions.
  - 2. Weight and load distribution.
  - 3. Required clearances for maintenance and operation.
  - 4. Size and location of piping and wiring connections.
  - 5. Diagrams for power, signal, and control wiring.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Installation instructions.
- B. Startup service reports.
- C. Sample Warranty: For special warranty.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each water chiller to include in emergency, operation, and maintenance manuals.

- B. Spare Parts List: Recommended spare parts list with quantity for each.
- C. Touchup Paint Description: Detailed description of paint used in application of finish coat to allow for procurement of a matching paint.

1.6 QUALITY ASSURANCE

- A. AHRI Certification: Certify chiller according to AHRI 590 certification program.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Ship water chillers from the factory fully charged with refrigerant and filled with oil.

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of water chillers that fail in materials or workmanship within specified warranty period.
  - 1. Extended warranties include, but are not limited to, the following:
    - a. Complete compressor and drive assembly including refrigerant and oil charge.
  - 2. Extended Warranty Period: Five years from date of Substantial Completion.

1.9 STARTUP SERVICE

- A. Include the engagement of a factory-authorized service representative to perform startup service.

1.10 DEMONSTRATION

- A. Include the engagement of a factory-authorized service representative to perform demonstration service to the Owner.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. AHRI Rating: Rate water chiller performance according to requirements in AHRI 550/590.
- B. ASHRAE Compliance: ASHRAE 15 for safety code for mechanical refrigeration.
- C. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."
- D. ASME Compliance: Fabricate and stamp water chiller heat exchangers to comply with ASME Boiler and Pressure Vessel Code.
- E. Comply with NFPA 70.
- F. Comply with requirements of UL and include label by a qualified testing agency showing compliance.

## 2.2 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by the following: Carrier, Dunham Bush, or JCI/York.

## 2.3 MANUFACTURED UNITS

- A. Description: Factory-assembled and run-tested water chiller complete with compressor(s), compressor motors and motor controllers, evaporator, condenser with fans, electrical power, controls, and indicated accessories.
- B. Acoustic-reduction package shall have the following:
  - 1. Acoustic enclosure around compressors.
  - 2. Variable-speed fans with acoustic treatment.
  - 3. Designed to reduce sound level without affecting performance.
- C. Security Package: Security grilles with fasteners for additional protection of compressors, evaporator, condenser coil trim panels, and hail guards for condenser coils. Grilles, panels, and guards shall be non-corroding material or coated steel for corrosion resistance and shall be removable for service access.

## 2.4 CABINET

- A. Base: Galvanized-steel base extending the perimeter of water chiller. Secure frame, compressors, and evaporator to base to provide a single-piece unit.
- B. Frame: Rigid galvanized-steel frame secured to base and designed to support cabinet, condenser, control panel, and other chiller components not directly supported from base.
- C. Casing: Galvanized steel.
- D. Finish: Coat base, frame, and casing with a corrosion-resistant coating capable of withstanding a 10500-hour salt-spray test according to ASTM B 117.

## 2.5 COMPRESSOR-DRIVE ASSEMBLIES

- A. Screw Compressors:
  - 1. Description: Positive-displacement direct drive with hermetically sealed casing.
  - 2. Casing: Cast iron, precision machined for minimum clearance about periphery of rotors.
  - 3. Rotors: Manufacturer's standard one- or two-rotor design.
  - 4. Each compressor provided with suction and discharge service valves, crankcase oil heater, and suction strainer.
    - a. For multiple compressor assemblies, it is acceptable to isolate each refrigeration circuit in lieu of each compressor.
  - 5. Capacity Control: On-off compressor cycling and modulating slide-valve assembly or port unloaders combined with hot-gas bypass, if necessary, to achieve performance indicated.
    - a. Maintain stable operation throughout range of operation. Configure to achieve most energy-efficient operation possible.
    - b. Operating Range: From 100 to 20 percent of design capacity.
    - c. Condenser-Air Unloading over Operating Range.

6. Oil Lubrication System: Consisting of pump if required, filtration, heater, cooler, factory-wired power connection, and controls.
    - a. Provide lubrication to bearings, gears, and other rotating surfaces at all operating, startup, shutdown, and standby conditions including power failure.
    - b. Thermostatically controlled oil heater properly sized to remove refrigerant from oil.
    - c. Factory-installed and pressure-tested piping with isolation valves and accessories.
    - d. Oil compatible with refrigerant and chiller components.
    - e. Positive visual indication of oil level.
  7. Vibration Isolation: Mount individual compressors on vibration isolators.
    - a. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in lieu of each compressor.
- B. Compressor Motors:
1. Hermetically sealed and cooled by refrigerant suction gas.
  2. High-torque, induction type with inherent thermal-overload protection on each phase.
- C. Compressor Motor Controllers:
1. Variable-Frequency Controller:
    - a. Motor controller shall be factory mounted and wired on the chiller to provide a single-point, field-power termination to the chiller and its auxiliaries.
    - b. Description: NEMA ICS 2; listed and labeled as a complete unit and arranged to provide variable speed by adjusting output voltage and frequency.
    - c. Enclosure: Unit mounted, NEMA 250, Type 3R, with hinged full-front access door with lock and key.
    - d. Technology: Pulse-width-modulated output suitable for constant or variable torque loads.
    - e. Motor current at start shall not exceed the rated load amperes, providing no electrical inrush.
- 2.6 REFRIGERATION
- A. Refrigerant: R-513A, or as per manufacturer's standard.
- B. Refrigerant Compatibility: Parts exposed to refrigerants shall be fully compatible with refrigerants, and pressure components shall be rated for refrigerant pressures.
- C. Refrigerant Circuit: Each circuit shall include an electronic-expansion valve, refrigerant charging connections, a hot-gas muffler, compressor suction and discharge shutoff valves, a liquid-line shutoff valve, a replaceable-core filter-dryer, a sight glass with moisture indicator, a liquid-line solenoid valve, and an insulated suction line.
- D. Refrigerant Isolation: Factory install positive shutoff isolation valves in the compressor discharge line and the refrigerant liquid-line to allow the isolation and storage of the refrigerant charge in the chiller condenser.
1. For multiple compressor assemblies, it is acceptable to isolate each refrigeration circuit in lieu of each compressor.
- E. Pressure Relief Device:
1. Comply with requirements in ASHRAE 15 and in applicable portions of ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
  2. ASME-rated, spring-loaded pressure relief valve; single- or multiple-reseating type.

## 2.7 EVAPORATOR

### A. Shell and Tube design:

1. Description: Direct-expansion, shell-and-tube flooded type with fluid flowing through the tubes and refrigerant flowing around the tubes within the shell.
2. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
3. Shell Material: Carbon steel.
4. Shell Heads: Removable carbon-steel heads located at each end of the tube bundle.
5. Fluid Nozzles: Terminated with mechanical-coupling end connections for connection to field piping.

### B. Tube Construction: Individually replaceable copper tubes with enhanced fin design, expanded into tube sheets.

### C. Flow Switch: Factory-furnished and -installed, thermal-type flow switch wired to chiller operating controls.

### D. Heater: Factory-installed and -wired electric heater with integral controls designed to protect the evaporator to minus 20 deg F. If required by manufacturer, heater power circuit may be separate from the power circuit for the chiller.

## 2.8 AIR-COOLED CONDENSER

### A. Coil(s) with integral subcooling on each circuit.

### B. Copper Tube with Plate Fin Coils:

1. Construct coils of copper tubes mechanically bonded to aluminum fins.

### C. **Aluminum Microchannel Coils are Not Acceptable.**

### D. Hail Protection: Provide condenser coils with louvers, baffles, or hoods to protect against hail damage.

### E. Fans: Direct-drive propeller type with statically and dynamically balanced fan blades, arranged for vertical air discharge.

### F. Fan Motors: TENV or TEAO enclosure, with sealed and permanently lubricated bearings, and having built-in overcurrent- and thermal-overload protection.

1. Overcurrent- and thermal-overload protection not integral to motor is acceptable if provided with chiller electrical power package.
2. With variable-frequency drives for variable airflow.

### G. Fan Guards: Removable steel safety guards with corrosion-resistant coating.

### H. Ambient temperature operating range of 0 deg F to 115 deg F.

## 2.9 INSULATION

### A. Closed-cell, flexible, elastomeric thermal insulation complying with ASTM C 534/C 534M, Type I for tubular materials and Type II for sheet materials.

1. Thickness: 1-1/2 inches.



- B. Adhesive: As recommended by insulation manufacturer.
- C. Factory-applied insulation over all cold surfaces of chiller capable of forming condensation. Components shall include, but not be limited to, evaporator, evaporator water boxes including nozzles, refrigerant suction pipe from evaporator to compressor, cold surfaces of compressor, refrigerant-cooled motor, and auxiliary piping.
  - 1. Apply adhesive to 100 percent of insulation contact surface.
  - 2. Before insulating steel surfaces, prepare surfaces for paint, and prime and paint as indicated for other painted components. Do not insulate unpainted steel surfaces.
  - 3. Seal seams and joints to provide a vapor barrier.
  - 4. After adhesive has fully cured, paint exposed surfaces of insulation to match other painted parts.
  - 5. Manufacturer has option to factory or field insulate chiller components to reduce potential for damage during installation.
  - 6. Field-Applied Insulation:
    - a. Components that are not factory insulated shall be field insulated to comply with requirements indicated.
    - b. Manufacturer shall be responsible for chiller insulation whether factory or field installed to ensure that manufacturer is the single point of responsibility for chillers.
    - c. Manufacturer's factory-authorized service representative shall instruct and supervise installation of field-applied insulation.
    - d. After field-applied insulation is complete, paint insulation to match factory-applied finish.

## 2.10 ELECTRICAL

- A. Factory installed and wired, and functionally tested at factory before shipment.
- B. Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to water chiller.
- C. House in a unit-mounted, NEMA 250, Type 3R enclosure with hinged access door with lock and key or padlock and key.
- D. Wiring shall be numbered and color-coded to match wiring diagram.
- E. Factory wiring located outside of enclosure shall be in raceway. Terminal connections shall be made with not more than a 24-inch length of liquidtight or flexible metallic conduit.
- F. Field power interface shall be to circuit breaker. Minimum SCCR according to UL 508 shall be as required by electrical power distribution system and as indicated on the drawings.
- G. Each motor shall have branch power circuit and controls with one of the following disconnecting means having SCCR to match main disconnecting means:
  - 1. NEMA KS 1, heavy-duty, non-fused switch.
- H. Each motor shall have overcurrent protection.
- I. Overload relay sized according to UL 1995, or an integral component of water chiller control microprocessor.
- J. Phase-Failure and Undervoltage: Solid-state sensing with adjustable settings.
- K. Controls Transformer: Unit-mounted transformer with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.

- L. Control Relays: Auxiliary and adjustable time-delay relays, or an integral to water chiller microprocessor.
- M. Indicate the following on the Operator Display the following for water chiller electrical power supply:
  - 1. Current, phase to phase, for all three phases.
  - 2. Voltage, phase to phase and phase to neutral for all three phases.
  - 3. Three-phase real power (kilowatts).
  - 4. Three-phase reactive power (kilovolt amperes reactive).
  - 5. Power factor.
  - 6. Running log of total power versus time (kilowatt hours).
  - 7. Fault log, with time and date of each.

## 2.11 CONTROLS

- A. Factory installed and wired, and functionally tested at factory before shipment.
- B. Standalone, microprocessor based, with all memory stored in nonvolatile memory so that reprogramming is not required on loss of electrical power.
- C. Enclosure: Share enclosure with electrical power devices or provide a separate enclosure of matching construction.
- D. Operator Interface: Keypad or pressure-sensitive touch screen. Multiple-character, 7" color digital display. Display the following:
  - 1. Date and time.
  - 2. Operating or alarm status.
  - 3. Operating hours.
  - 4. Outside-air temperature if required for chilled-water reset.
  - 5. Temperature and pressure of operating set points.
  - 6. Chilled-water entering and leaving temperatures.
  - 7. Refrigerant pressures in evaporator and condenser.
  - 8. Saturation temperature in evaporator and condenser.
  - 9. No cooling load condition.
  - 10. Elapsed time meter (compressor run status).
  - 11. Pump status.
  - 12. Antirecycling timer status.
  - 13. Percent of maximum motor amperage.
  - 14. Current-limit set point.
  - 15. Number of compressor starts.
  - 16. Alarm history with retention of operational data before unit shutdown.
  - 17. Superheat.
- E. Control Functions:
  - 1. Manual or automatic startup and shutdown time schedule.
  - 2. Capacity control based on evaporator leaving-fluid temperature.
  - 3. Capacity control compensated by rate of change of evaporator entering-fluid temperature.
  - 4. Chilled-water entering and leaving temperatures, control set points, and motor load limit. Chilled-water leaving temperature shall be reset based on return-water temperature.
  - 5. Current limit and demand limit.
  - 6. Condenser-water temperature.
  - 7. External water chiller emergency stop.
  - 8. Antirecycling timer.
  - 9. Automatic lead-lag switching.

- F. Manual-Reset Safety Controls: The following conditions shall shut down water chiller and require manual reset:
  - 1. Low evaporator pressure or high condenser pressure.
  - 2. Low chilled-water temperature.
  - 3. Refrigerant high pressure.
  - 4. High or low oil pressure.
  - 5. High oil temperature.
  - 6. Loss of chilled-water flow.
  - 7. Loss of condenser-water flow.
  - 8. Control device failure.
- G. BAS System Interface: Factory-install hardware and software to enable system to monitor, control, and display chiller status and alarms.
  - 1. Hardwired I/O Points:
    - a. Monitoring: On/off status, common trouble alarm.
    - b. Control: On/off operation, chilled-water discharge temperature set-point adjustment.
    - c. Chiller Pump Output Relay.
  - 2. Communication Interface: ASHRAE 135 BACnet or LonTalk communication interface, as indicated on the drawings and as coordinated with the BAS system being provided, shall enable control system operator to remotely control and monitor the water chiller from an operator workstation. Control features and monitoring points displayed locally at water chiller control panel shall be available through DDC system for HVAC.
- H. Factory-installed wiring outside of enclosures shall be in NFPA 70-complaint raceway. Make terminal connections with liquidtight or flexible metallic conduit.

## 2.12 ACCESSORIES

- A. Factory-furnished neoprene isolators for field installation.

## 2.13 SOURCE QUALITY CONTROL

- A. Perform functional test of water chillers before shipping.
- B. Factory test and inspect evaporator according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1. Stamp with ASME label.
- C. For water chillers located outdoors, rate sound power level according to AHRI 370 procedure.

## PART 3 - EXECUTION

- 3.1 **This specification Section is for Equipment Procurement Package for the project. Requirements for Execution and Installation of chillers are included for reference only. Installation of chillers is part of subsequent specifications and bid package for the project.**

## 3.2 EXAMINATION

- A. Examine chillers upon receipt and prior to installation. Reject chillers that are damaged.

- B. Before water chiller installation, examine roughing-in for equipment support, anchor-bolt sizes and locations, piping, controls, and electrical connections to verify actual locations, sizes, and other conditions affecting water chiller performance, maintenance, and operations.
    - 1. Water chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping, controls, and electrical connections.
  - C. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.3 WATER CHILLER INSTALLATION
- A. Coordinate sizes and locations of bases with actual equipment provided.
  - B. Equipment Mounting:
    - 1. Install water chillers on existing, new, or extended concrete equipment bases.
    - 2. For new or extended concrete bases, comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
    - 3. Mount on factory-furnished neoprene isolators.
  - C. Maintain manufacturer's recommended clearances for service and maintenance.
  - D. Maintain clearances required by governing code.
  - E. Chiller manufacturer's factory-trained service personnel shall charge water chiller with refrigerant if not factory charged and fill with oil if not factory installed.
  - F. Install separate devices furnished by manufacturer and not factory installed.
    - 1. Chillers shipped in multiple major assemblies shall be field assembled by chiller manufacturer's factory-trained service personnel.
- 3.4 PIPING CONNECTIONS
- A. Comply with requirements in Section 232113 "Hydronic Piping" and Section 232116 "Hydronic Piping Specialties." Drawings indicate general arrangement of piping, fittings, and specialties.
  - B. Where installing piping adjacent to chillers, allow space for service and maintenance.
  - C. Evaporator Fluid Connections:
    - 1. Make connections to water chiller with a mechanical coupling.
  - D. Connect each drain connection with a drain valve, full size of drain connection.
  - E. Connect each chiller vent connection with an automatic vent, full size of vent connection.
- 3.5 ELECTRICAL POWER CONNECTIONS
- A. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
  - B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

- C. Provide nameplate for each electrical connection indicating electrical equipment designation and circuit number feeding connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high. Locate nameplate where easily visible.

### 3.6 CONTROLS CONNECTIONS

- A. Install control and electrical power wiring to field-mounted control devices.
- B. Connect control wiring between chillers and other equipment to interlock operation as required to provide a complete and functioning system.
- C. Connect control wiring between chiller control interface and BAS system for remote monitoring and control of chillers. Comply with requirements in Section 230900 "Building Automation System."
- D. Provide nameplate on face of chiller control panel indicating control equipment designation serving chiller and the I/O point designation for each control connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high.

### 3.7 STARTUP SERVICE

- A. Included with chillers as part of Equipment Procurement, a factory-authorized service representative shall perform startup service.
- B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.
- C. Complete installation and startup checks shall include the following:
  - 1. Verify that refrigerant charge is sufficient and water chiller has been leak tested.
  - 2. Verify that pumps are installed and functional.
  - 3. Verify that thermometers and gages are installed.
  - 4. Operate water chiller for run-in period.
  - 5. Check bearing lubrication and oil levels.
  - 6. Verify that refrigerant pressure relief device for chillers installed indoors is vented outside.
  - 7. Verify proper motor rotation.
  - 8. Verify static deflection of vibration isolators, including deflection during water chiller startup and shutdown.
  - 9. Verify and record performance of water chiller protection devices.
  - 10. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.
- D. Visually inspect chiller for damage before starting. Repair or replace damaged components, including insulation. Do not start chiller until damage that is detrimental to operation has been corrected.
- E. Prepare a written startup report that records results of tests and inspections.

### 3.8 DEMONSTRATION

- A. Included with chillers as part of Equipment Procurement, a factory-authorized service representative shall train Owner's maintenance personnel to adjust, operate, and maintain water chillers.
  - 1. Instructor shall be factory trained and certified.
  - 2. Train personnel in operation and maintenance and to obtain maximum efficiency in plant operation.

3. Provide instructional videos showing general operation and maintenance that are coordinated with operation and maintenance manuals.
4. Obtain Owner sign-off that training is complete.
5. Owner training shall be held at Project site.

END OF SECTION 236426