




Memorandum From Purchasing Department

Letter of Instruction For RFP #251-24-489

To: Prospective Parties

Thank you for your interest in the Wake County Public School System. Please review the following instructions prior to submitting your proposal.

- A pre-proposal conference will be held N/A.
- All submittals must be organized and indexed according to the section number and required subject matter. The information contained in your submittal should be indexed and easily accessed by WCPSS. WCPSS is not required to seek clarification on any proposal that does not meet these minimum requirements.
- Prior to submitting and executing the proposal, please make sure you read and understand the terms and conditions referenced. All proposals are subject to the terms and conditions outlined herein. All responses will be controlled by such terms and conditions and the submission of other terms and conditions, price lists, catalogs, and/or other documents as part of an offeror's response will be waived and have no effect either on this Request For Proposals or on any contract that may be awarded resulting from this solicitation. The attachment of any other terms and conditions by the Offeror may be grounds for rejection of that proposal. Offeror specifically agrees to the conditions set forth in the above paragraph by signature to the proposal.
- WCPSS will adhere to strict deadlines as indicated in the solicitation document and thus will not make exceptions to these dates and times.
- Please read carefully the section titled CONFIDENTIALITY AND PROHIBITED COMMUNICATIONS DURING THE RFP PROCESS. All questions should be directed to Jim Jaeger at: jjjaeger@wcpss.net
- Offerors are cautioned that this is a request for offers, not a request to contract, and WCPSS reserves the unqualified right to reject any and all offers when such rejection is deemed to be in the best interest of WCPSS.
- In submitting a proposal the Offeror agrees not to use the results there from as part of any news release or commercial advertising.
- **Submit:** *one (1) signed, original executed proposal response, along with 1 photocopy and 1 electronic copy if possible* (emails not accepted) of your proposal simultaneously to the address identified below. *Clearly mark each package with: (1) Vendor name; (2) the RFP number; and (3) the due date. Address the package(s) for delivery as shown in the table below.* 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.
- **Public opening to start at 2:00 p.m. on DUE DATE at:**
WCPSS Purchasing Dept. 1551 Rock Quarry Road, Building F Raleigh, NC 27610

 WAKE COUNTY PUBLIC SCHOOL SYSTEM WCPSS Purchasing Dept. 1551 Rock Quarry Rd – Bldg. F Raleigh, NC 27610	Request For Proposal # 251-24-489	
	Proposals will be due: MAY 24, 2024 2:00PM	
	Contract Type: COMMODITY PURCHASE	
Refer <u>ALL</u> Inquiries in email form to: Jim Jaeger	Commodity: CHILLER REPLACEMENT UNITS – DILLARD DRIVE PLANT	
Buyer E-Mail: jjaeger@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 3 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.

DELIVER SEALED PROPOSAL TO: JIM JAEGER

PROPOSAL NO.

RFP 251-24-489

Wake County Public School System

Purchasing Department

1551 Rock Quarry Road – Bldg. F

Raleigh NC 27610-4145

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	MAY 13, 2024	by 5:00 p.m.
Questions submitted to: jjaeger@wcpss.net (Reference RFP # in subject line)	Vendor/WCPSS	MAY 17, 2024	by 3:00 p.m.
Response to Questions Posted to Websites	WCPSS	MAY 20, 2024	by 5:00 p.m.
Submit Proposal Deadline and Public Bid Opening (At above location)	Vendor/WCPSS	Due: MAY 24, 2024	2:00 P.M ET

PROPOSAL QUESTIONS

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 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.** Questions should be emailed to: jjjaeger@wcpss.net

Proposal Evaluation

All proposals will be evaluated by representatives of WCPSS. WCPSS may, at its sole discretion, ask for additional information and/or elect to conduct interviews with finalists to clarify information provided in the proposals. The services that are the subject of this RFQ/P are not required to be bid under North Carolina law, and none of the statutory requirements regarding public bidding apply to this RFQ/P. This document, and not those statutes, will govern the selection process.

WCPSS shall not be required to award the contract to the lowest proposed compensation; nor shall WCPSS have any obligation to explain its decision to recommend or not to recommend any particular vendor or to invite or exclude any particular vendor from consideration at any stage of the process. Instead of recommending that contracts be awarded to one or more vendors who presented proposals, WCPSS may, at its sole discretion, reject the proposals and repeat the process, enter into direct contract negotiations with one or more vendors (possibly including vendors who have not previously submitted proposals) or take any other action WCPSS deems advisable under all the circumstances.

WCPSS is expected to make any final selection(s) based upon any factors or considerations WCPSS deems relevant. Factors often considered include qualifications, relevant experience, fee, and ability to 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. WCPSS shall not have any obligation to explain its decision to select or not select any individual vendors or to invite or exclude any individual vendors from consideration at any stage of the process. The decision of WCPSS to accept or reject any proposals and to award contract(s) to any one or more vendor(s) shall be final and not subject to further review.

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.

Scope of Work

Refer to "Project" pages included with this RFP.

The Wake County Public School System (WCPSS) is the nation's sixteenth largest school district and the largest in the state of North Carolina. With 112 elementary schools, 38 middle schools, 28 high schools and 5 special schools, we serve over 160,000 students.

Minimum Requirements

Vendor shall identify and provide all requested rates and confirm part markup restrictions.

Vendor must complete and return all required attachments. Additional information may be included that effect the total cost to WCPSS.

It shall be mandatory that the selected vendor enforce the following employee requirements:

All employees are subject to the required background checks as described in the terms and conditions section of the solicitation. Any employee of awarded vendor that does not meet the requirements and are scheduled for ANY move will subject.

Qualifications

THE VENDOR shall be licensed and approved to do business in the State of North Carolina.

No fewer than five years experience in performing the required duties will be accepted.
Please provide references.

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

Present sufficient qualified personnel to carry out the project in a timely fashion. Please include staffing information.

Demonstrated experience in performing similar projects.

Experience with the service and material supply referenced in this RFP.

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>

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AWARD OF CONTRACT: It is the general intent to award this contract to a single vendor, unless otherwise described in the RFP. The right is reserved, however, to make awards to multiple vendors, if such shall be

considered by Wake County Public School System to be most advantageous or to constitute its best interest. Vendors should show any required unit prices, but are requested also to offer a lump sum price where appropriate.

RFP EVALUATION: Proposals are requested for the services in the RFP. Wake County Public School System reserves the right to reject any proposal for any reason. Vendor(s) are cautioned that any/all information furnished or not furnished on this proposal may be used as a factor in determining the award of this contract.

DEVIATIONS: Any deviations from specifications and requirements herein must be clearly pointed out by vendor. Otherwise it will be considered that the services offered are in strict compliance with these specifications and requirements, and successful vendor will be held responsible therefor. Deviations must be explained in detail below or on an attached sheet. However, no implication is made by Wake County Public School System that deviations will be acceptable. Vendor is advised that the response (or lack thereof) on this question does not take precedence over specific responses or non-responses provided elsewhere in this RFP.

FIRM PROPOSAL: Prices and any other entry made hereon by the vendor shall be considered firm and not subject to change or withdrawal.

WCPSS Purchasing Department Ethics Policy and Standards of Conduct shall apply to this RFP.

CONFIDENTIALITY AND PROHIBITED COMMUNICATIONS DURING EVALUATION: During the proposal process from the date proposals are issued through the date the contract is awarded—each Vendor submitting a proposal (including its representatives, sub-contractors and/or suppliers) is prohibited from having any communications with any Wake County Board of Education member, any employee of WCPSS, or any other person in any way involved in the award of this contract, if the communication refers to the content of Vendor's proposal or qualifications, the contents of another Vendor's proposal, another Vendor's qualifications or ability to perform the contract, and/or the transmittal of any other communication of information that could be reasonably considered to have the effect of directly or indirectly influencing the evaluation of proposals and/or the award of the contract. A Vendor not in compliance with this provision shall be disqualified from contract award. A Vendor's proposal may be disqualified if its sub-contractor and supplier engage in any of the foregoing communications during the time that the procurement is active (i.e., the issuance date of the procurement to the date of contract award). Only those discussions, communications or transmittals of information authorized or initiated by WCPSS for this RFP or general inquiries directed to the purchaser regarding requirements of the RFP (prior to proposal submission) or the status of the contract award (after submission) are excepted from this provision. Notwithstanding the above, the vendor may direct any written concerns, questions or issues to Debra Wallace at dwallace2@wcpss.net.

TERMS & CONDITIONS

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TERMS AND CONDITIONS

1. **READ, REVIEW AND COMPLY:** It shall be the vendor's responsibility to read this entire document, review all enclosures and attachments, and comply with all requirements specified herein. Vendor shall review WCPSS's Purchasing Department Ethics Policy and Standards of Conduct and shall refrain from any actions that would cause an employee to be in violation of the policies.
2. **NOTICE TO VENDORS:** All proposals are subject to the provisions of special terms and conditions specific to this RFP, the specifications. Wake County Public School System (WCPSS) objects to and will not evaluate or consider any additional terms and conditions submitted with a vendor's response. This applies to any language appearing in or attached to the document as part of the vendor's response. **DO NOT ATTACH ANY ADDITIONAL TERMS AND CONDITIONS.** By execution and delivery of this document, the vendor agrees that any additional terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect.
3. **EXECUTION:** Failure to sign under EXECUTION section may render proposal invalid.
4. **ORDER OF PRECEDENCE:** In cases of conflict between specific provisions in this RFP, the order of precedence shall be (1) special terms and conditions specific to this RFP, (2) specifications, and (3) Instructions to Vendors.
5. **TIME FOR CONSIDERATION:** Unless otherwise indicated on the first page of this document, vendor's proposal shall be valid for 45 days from the date of proposal opening. Preference may be given to responses allowing not less than 45 days for consideration and acceptance.
6. **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 vendor will be held responsible, therefore. Deviations shall be explained in detail. The vendor shall not construe this paragraph as inviting deviation or implying that any deviation will be acceptable.
7. **CLARIFICATIONS/INTERPRETATIONS:** Any and all questions regarding this document must be addressed to the WCPSS representative 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 vendor is cautioned that the requirements of this RFP can be altered only by written addendum and that verbal communications from whatever source are of no effect.
8. **ACCEPTANCE AND REJECTION:** WCPSS reserves the right to reject any and all proposals, to waive any informality in proposals and, unless otherwise specified by the vendor, to accept any item in the proposal.
9. **AWARD OF CONTRACT:** Qualified proposals will be evaluated and acceptance may be made to the proposal most advantageous to WCPSS as determined upon consideration of such factors as: prices offered; the quality of the services offered; the general reputation and performance capabilities of the vendors; the substantial conformity with the specifications and other conditions set forth in the RFP; the suitability of the services; the date or dates of delivery and performance; and such other factors deemed by WCPSS to be pertinent or peculiar to the services in question. WCPSS also reserves the right to reject any and all proposals.
10. **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.
11. **CONFIDENTIAL INFORMATION:** As provided by statute and rule, WCPSS will consider keeping trade secrets which the vendor does not wish disclosed confidential. Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL" by the vendor. 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.
12. **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.
13. **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 vendors. The "Principal Place of Business" is defined as the principal place from which the trade or business of the vendor is directed or managed.
14. **DEFAULT AND PERFORMANCE BOND:** In case of default by the vendor, WCPSS may procure the articles or services from other sources and hold the vendor responsible for any excess cost occasioned thereby. WCPSS reserves the right to require performance bond or other acceptable alternative guarantees from successful vendor without expense to WCPSS.
15. **GOVERNMENTAL RESTRICTIONS:** In the event any Governmental restrictions are imposed which necessitate alteration of the services prior to their delivery, it shall be the responsibility of the vendor 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.
16. **TAXES:** Any applicable taxes shall be invoiced as a separate item.
17. **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.
18. **GOVERNING LAWS:** This contract is made under and shall be governed and construed in accordance with the laws of the state of North Carolina.
19. **INSPECTION AT VENDOR'S SITE:** WCPSS reserves the right to inspect, at a reasonable time, the equipment, plant, or other facilities of a prospective vendor prior to contract award, and during the contract term as necessary for WCPSS determination that such services conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract.
20. **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 vendor for payment if the vendor accepts that card (Visa, Mastercard, etc.) from other customers.
21. **PATENT:** The vendor 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.
22. **ASSIGNMENT:** No assignment of the vendor's obligations nor the vendor'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 vendor, WCPSS may: a. Forward the vendor's payment check directly to any person or entity designated by the vendor, and b. Include any person or entity designated by vendor as a joint payee on the vendor's payment check. In no event shall such approval and action obligate WCPSS to anyone other than the vendor and the vendor shall remain responsible for fulfillment of all contract obligations.
23. **INSURANCE:**
 - a. Worker's Compensation including Occupational Disease and Employer's Liability Insurance. Statutory - Amount and coverage as required by state of North Carolina Worker's Compensation laws. Employer's Liability - At least
 - Part A Bodily Injury Statutory Limits
 - Part B By Accident \$500,000 each accident
 - By Disease \$500,000 policy limit
 - \$500,000 each employee

b. **Public liability and Property Damage Insurance** - 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

c. **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 \$1,000,000; and \$2,000 medical payments.

d. **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.

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.

24. GENERAL INDEMNITY: The vendor 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 vendor in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of the vendor. The vendor represents and warrants that it shall make no claim of any kind or nature against WCPSS agents who are involved in the project. This section shall survive the termination or expiration of this contract.

25. LUNSFORD ACT/CRIMINAL BACKGROUND CHECKS: The Vendor 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 Vendor'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 Vendor 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 Vendor 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, Vendor 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. Vendor further agrees to conduct annual registry checks of all contractual personnel and provide annual certifications at each anniversary date of this Agreement. Vendor 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. Vendor 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. Vendor 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 Vendor's expense. If the school system exercises this right to conduct additional criminal records checks, Vendor 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. Vendor 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 Vendor 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.

26. ACCESS TO PERSONS AND RECORDS: WCPSS and its internal auditors shall have access to persons and records as a result of this contract. Vendor shall provide reasonable access to all documents, invoices, pay records and other materials involved in this contract.

27. COMPLIANCE WITH E-VERIFY: Vendor shall comply with all applicable laws and regulations in providing services under this Contract. In particular, Vendor 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. Vendor 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. Vendor 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.

28. COMPLIANCE WITH AFFORDABLE CARE ACT: Vendor 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.

29. 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.

30. Termination for Default. At any time, the School System may terminate this Contract immediately and without prior notice if Vendor is unable to meet goals and timetables or if the School System is dissatisfied with the quality of services provided. The Vendor shall reimburse the School System for any for any costs and expenses incurred by the School System resulting from the Vendor's default. In the event of a termination pursuant to this section, the school system reserves its rights to pursue all remedies to which it may be entitled at law or in equity.

31. Termination for Convenience. The School System may terminate this Contract at any time at its complete discretion upon twenty (20) calendar days' notice in writing from the School System to Vendor prior to the date of termination. In addition, all finished or unfinished documents and other materials produced by Vendor pursuant to this Contract shall, at the request of the School System be turned over to it and become its property. If the Contract is terminated by the School System in accordance with this section, the School System will pay Vendor for all services performed and accepted as of the date of termination.

32. 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).

33. 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. § 147-86.8133.

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.

Company Name (include dba): _____

Phone number: _____ Fax: _____ E-mail: _____

Contact: _____

Corporate Office Address: _____

Wake County Office Address (if different from Corporate): _____

Web Address: _____

Length of time in business: _____ Number of permanent employees: _____

DOT #: (if appl): _____ MC License # (if appl): _____

Insurance Contact: _____ Phone: _____

The Wake County Public School System reserves the right to reject or disqualify any and all vendors, waive informalities and irregularities in the bid process, and to accept vendors, which are considered to be in the best interest of the School System.

WAKE COUNTY PUBLIC SCHOOL SYSTEM BID PROTEST PROCEDURE

PURPOSE

To ensure fairness and to promote open competition, Wake County Public School System shall be consistent in responding to an offeror's protest over contract awards.

PROCEDURE

Any party which is a prospective bidder, offeror, or contractor that may be aggrieved by the solicitation must submit a written protest within five (5) calendar days prior to the opening of the Request for Bid, Request for Proposal.

Any party which is an actual bidder, offeror, or contractor that may be aggrieved by the award of a contract, must submit a written protest within five (5) calendar days of Wake County Public School System's transmitting via fax or email the announcement of intent to award.

The protest must be addressed to the Senior Director of Purchasing, Building F, 1551 Rock Quarry Road, Raleigh, NC 27610 and must include all of the following information:

1. Name, address, telephone number, facsimile number and e-mail of the protester.
2. Signature of the protester or authorized agent.
3. The bid name and number.
4. A detailed statement of the legal and factual grounds of protest including copies of relevant documents.
5. Any supporting exhibits, evidence, or documents to substantiate any claims.
6. All information establishing that the protester is an interested party for the purpose of filing a protest.
7. The form of relief requested.

After careful consideration of all relevant information the Senior Director of Purchasing shall make a written decision. Any and all costs incurred by a protesting party in connection with a protest shall be the sole responsibility of the protesting party.



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.

Vendor Signature: _____

Date: _____ Print Name: _____

DELIVER SEALED VIA DELIVERY/COURIER TO: Jim Jaeger

Due by: MAY 24, 2024 2:00 pm ET

RFP NO.: 251-24-489

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	Unit Price	TOTAL PRICE
2 EACH	<p>Provide price for purchase of a 312.5 Ton Water Cooled Screw Chiller as per attached Chiller schedule and Chiller specifications and Accessories. <u>Shall include factory startup and delivery to the contractor.</u></p> <p>Delivery of equipment must be no later than 6/13/2025</p> <p>The basis of design is a: CARRIER 23XRV</p> <p>MUST SPECIFY DELIVERY ARO: _____</p>	\$	\$
<u>*IMPORTANT NOTES</u>		<u>IMPORTANT NOTE:</u>	<u>SPECIFICATION SHEETS MUST BE INCLUDED WITH YOUR RFQ SUBMISSION</u>
<u>IMPORTANT *NOTE*</u>	QUOTE DELIVERED PRICING		
<u>VENDOR NOTE:</u>	DELIVERED PRICE		
	<p><u>IMPORTANT NOTE:</u> ALL BIDDING VENDORS MUST BE "FULL SERVICE DISTRIBUTORS" FOR THE ABOVE REQUESTED PRODUCTS. RFQ'S SUBMITTED FROM BROKERS, 3rd 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.</p>		
	FOR: Dillard Dr. Plant (FAL) SUBMISSIONS MUST MEET PROVIDED SPECIFICATIONS	TOTAL:	\$

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 CONTRACTED MECHANICAL 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: _____

WATER-COOLED CHILLER SCHEDULE

MARK	SERVICE	TYPE	MANUFACTURER / MODEL	REFRIGERANT		CHILLED WATER				CONDENSER WATER						
				TYPE	CHARGE (LBS)	CAPACITY (TONS)	FLOW (GPM)	MIN FLOW (GPM)	EWT (F)	LWT (F)	MAX WPD (FT H2O)	FLOW (GPM)	MIN FLOW (GPM)	EWT (F)	LWT (F)	MAX WPD (FT H2O)
CH-1	CHW LOOP	W/C ROTARY SCREW	CARRIER / 23XRV	R-513A	750	312.5	750	323	54	44	10	940	615	85	95	11
CH-2	CHW LOOP	W/C ROTARY SCREW	CARRIER / 23XRV	R-513A	750	312.5	750	323	54	44	10	940	615	85	95	11

NOTES

1. REFER TO SECTION 236418 FOR ADDITIONAL REQUIREMENTS OF WATER-COOLED CHILLERS.
2. SOUND PERFORMANCE IS BASED ON SOUND PRESSURE LEVELS MEASURED AT 30 FEET FROM UNIT AT FULL CAPACITY IN ACCORDANCE WITH ARI 370.
3. CAPACITIES ARE BASED ON 0.00010 EVAPORATOR AND 0.00025 CONDENSER FOULING FACTORS FOR WATER-COOLED CHILLERS.
4. PROVIDE 8-INCH DEEP CONCRETE PAD FOR INDOOR CHILLERS THAT IS 6-INCHES LONGER AND WIDER THAN UNIT FOOTPRINT.
5. PROVIDE UNIT MOUNTED VFD WITH HARMONIC MITIGATION.
6. UNIT TO BE CONFIGURED IN A 2-PASS ARRANGEMENT ON EVAPORATOR AND CONDENSER.
7. PROVIDE CHILLER WITH FACTORY FURNISHED BACNET COMMUNICATION CARD.
8. PROVIDE CHILLER WITH ANALOG CHILLED WATER SETPOINT RESET.
9. CHILLER PROVIDED BY OWNER INCLUDING FACTORY STARTUP; CONTRACTOR SHALL COORDINATE AND RECEIVE CHILLER DIRECTLY FROM MANUFACTURER AND INSTALL COMPLETE.

PERFORMANCE				ELECTRICAL			CONTROL POWER		DIMENSIONS AND WEIGHT			NOTES	
FULL LOAD (KW/TON)	MAX. IPLV (KW/TON)	MAX. NPLV (KW/TON)	MAX. SOUND (dBA)	FLA (A)	MCA (A)	MOCP (A)	VOLTAGE/ PHASE	RECID (Y OR N)	FOOTPRINT (FT X FT)	HEIGHT (FT)	WEIGHT (LBS)		
0.5988	0.3308	0.3332	83	298.3	308	500	460/3	NOINTEGRAL	14.3 X 6.7	7.6	20,012	1,2,3,4,5,6,7,8,9	
0.5988	0.3308	0.3332	83	298.3	308	500	460/3	NOINTEGRAL	14.3 X 6.7	7.6	20,012	1,2,3,4,5,6,7,8,9	

SECTION 23 64 16 – WATER-COOLED CHILLERS

PART 1 - GENERAL

1.1. SUMMARY

- A. Section includes packaged, water-cooled, electric motor driven chillers.

1.2. PERFORMANCE REQUIREMENTS

- A. Condenser-Fluid Temperature Performance:
 - 1. Startup Condenser-Fluid Temperature: Chiller shall be capable of starting with an entering condenser-fluid temperature of 60 deg F and providing stable operation until the system temperature is elevated to the minimum operating entering condenser-fluid temperature.
 - 2. Minimum Operating Condenser-Fluid Temperature: Chiller shall be capable of continuous operation over the entire capacity range indicated with an entering condenser-fluid temperature of 60 deg F.
 - 3. Make factory modifications to standard chiller design if necessary to comply with performance indicated.

1.3. SUBMITTALS

- A. Product Submittals:
 - 1. For each type of product indicated include refrigerant, rated capacities, operating characteristics, furnished specialties and accessories.
 - a. Performance at AHRI standard conditions and at conditions indicated.
 - b. Performance at AHRI standard unloading conditions.
 - c. Minimum evaporator flow rate.
 - d. Refrigerant capacity of chiller.
 - e. Oil capacity of chiller.
 - f. Fluid capacity of evaporator, condenser.
 - g. Characteristics of safety relief valves.
 - h. Minimum entering condenser-fluid temperature.

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- i. Performance at varying capacities with constant design condenser-fluid temperature. Repeat performance at varying capacities for different condenser-fluid temperatures from design to minimum in 5 deg F increments.
- 2. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - a. Detail equipment assemblies and indicate dimensions, weights, load distribution, required clearances, method of field assembly, components, and location and size of each field connection.
 - b. Wiring Diagrams: For power, signal, and control wiring.
- 3. Warranty: Sample of special warranty.
- B. Close-Out Submittals:
 - 1. Operation and Maintenance Data: For each chiller to include in emergency, operation, and maintenance manuals.

1.4. QUALITY ASSURANCE

- A. AHRI Certification: Certify chiller according to AHRI 550 certification program.
- B. ASHRAE Compliance:
 - 1. ASHRAE 15 for safety code for mechanical refrigeration.
 - 2. ASHRAE 147 for refrigerant leaks, recovery, and handling and storage requirements.
- C. ASME Compliance: Fabricate and label chillers to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1, as applicable to chiller design. For chillers charged with R-513a refrigerant, include an ASME U-stamp and nameplate certifying compliance.
- D. Efficiencies shall comply with the State Energy Conservation Code.
- E. Electrical Components, Devices and Accessories: UL listed and labeled as defined by NFPA 70, the National Electric Code, or equivalent by a qualified testing agency marked for the intended location and application and accepted by the Authority Having Jurisdiction and Engineer.
- F. Mechanical Equipment and Materials: UL listed and labeled as defined by State Building Codes or equivalent by a qualified testing agency marked for the intended location and application and accepted by the Authority Having Jurisdiction and Engineer.
- G. Testing and listing laboratories of mechanical and electrical equipment shall be accredited by the North Carolina Building Code Council (NCBCC).

1.5. DELIVERY, STORAGE, AND HANDLING

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- A. Ship each chiller with a full charge of refrigerant. Charge each chiller with nitrogen if refrigerant is shipped in containers separate from chiller.
- B. Ship each oil-lubricated chiller with a full charge of oil.

1.6. COORDINATION

- A. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases.

1.7. WARRANTY

- A. Special Warranty: Manufacturer's complete parts, labor and refrigerant warranty for 5-years from the date of Owner Acceptance.

1.8. EXTRA MATERIALS

- A. Extra Stock: Provide owner with the following extra materials:
 - 1. Quart container of paint used in application of topcoat to use in touchup applications.

PART 2 - PRODUCTS

2.1. GENERAL REQUIREMENTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following for single-circuit single-compressor chillers:
 - 1. Carrier (23XRV Series)
 - 2. Daikin-McQuay (WWV Series)
 - 3. Johnson Controls/York (YV or YK Series)
 - 4. Trane (Agility Centrifugal Series)

2.2. WATER-COOLED CHILLERS

- A. Description: Factory-assembled and tested water-cooled screw or centrifugal chiller complete with compressor(s), compressor motor(s), compressor motor controller(s), evaporator, condenser, controls, interconnecting unit piping and wiring, and indicated accessories.
- B. Compressor Drive Assembly: Single-stage or multi-stage, variable-displacement, centrifugal-type compressor driven by an electric motor. Compressor shall be

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constructed of precision ground cast-iron with high-strength cast-aluminum, cast-aluminum alloy on carbon or alloy steel impeller.

1. Compressor Drive: Semi-hermetic or hermetic design using an electric motor as the driver.
 - a. Gear Drives: For chillers with gear drives, provide single- or double-helical gear design continuously coated with oil while chiller is operating. Gears shall comply with American Gear Manufacturer Association standards.
 - b. Open Drives: For chillers with open drives, provide flexible disc with all-metal construction and no wearing parts to ensure long life without the need for lubrication.
 - c. Seals: Seal drive assembly to prevent refrigerant leakage.
2. Compressor Motor: Continuous-duty, squirrel-cage, induction-type, two-pole motor with energy efficiency required to suit chiller energy efficiency indicated. Factory mounted, aligned, and balanced as part of compressor assembly before shipping. Motor shall be of sufficient capacity to drive compressor throughout entire operating range without overload and with sufficient capacity to start and accelerate compressor without damage. For chillers with open drives, provide motor with open drip-proof enclosure.
- C. Capacity Control: Variable speed compressor for capacity modulation without the need of hot gas bypass or mechanical unloaders. Maintain stable operation that is free of surge, cavitation, and vibration throughout range of operation. Configure to achieve most energy-efficient operation possible.
 1. Operating Range: From 100 to 15 percent of design capacity.
 2. Condenser-Fluid Unloading Requirements over Operating Range: Drop-in entering condenser-fluid temperature of 2.5 deg F for each 10 percent in capacity reduction.
 3. Chillers with variable frequency controllers shall modulate compressor speed with variable-inlet, guide-vane control to achieve optimum energy efficiency.
 4. Oil Lubrication System: Consisting of pump, filtration, heater (when applicable), refrigerant or water-cooled oil cooler, factory-wired power connection, piping, oil level visual indicator and controls. Provide lubrication to bearings, gears, and other rotating surfaces at all operating, startup, coast-down, and standby conditions including power failure. Piping shall be factory-installed and pressure-tested with isolation valves and accessories. Oil shall be compatible with refrigerant and chiller components.

2.3. REFRIGERATION

- A. Refrigerant: R-513a.
- B. Refrigerant Flow Control: Manufacturer's standard refrigerant flow-control device satisfying performance requirements indicated.

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- C. 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. Chillers Using R-513a: ASME-rated, spring-loaded, pressure relief valve; single- or multiple-seating type. Pressure relief valve(s) shall be provided for each heat exchanger. Condenser shall have dual valves with one being redundant and configured to allow either valve to be replaced without loss of refrigerant.
- D. Refrigeration Transfer: Provide service valves and other factory-installed accessories required to facilitate transfer of refrigerant from chiller to a remote refrigerant storage and recycling system. Comply with requirements in ASHRAE 15 and ASHRAE 147.

2.4. EVAPORATOR AND CONDENSER

- A. Description: Shell-and-tube design with water in tubes and refrigerant surrounding tubes within shell. Shell is separate from condenser.
- B. Shell Material: Carbon-steel rolled plates with continuously welded seams or seamless pipe.
- C. Tubes: Copper tubes with smooth internal finish and minimum thickness of 0.025-inches that are individually replaceable from either end without damage to tube sheets and other tubes and mechanically expanded into end sheets and physically attached to intermediate tube sheets.
- D. End Tube Sheets: Continuously welded to each end of shell; drilled and reamed to accommodate tubes with positive seal between fluid in tubes and refrigerant in shell.
- E. Intermediate Tube Sheets: Installed in shell and spaced along length of tube at intervals required to eliminate vibration and to avoid contact of tubes resulting in abrasion and wear.
- F. Corrosion Protection: Electrolytic corrosion-inhibitor sacrificial anodes, minimum two per water box.

2.5. INSULATION

- A. Factory-applied closed-cell flexible elastomeric insulation, 3/4-inch minimum thickness, complying with Section 230716 over all cold surfaces of chiller capable of forming condensation. Components shall include, but not be limited to, evaporator shell and end tube sheets, evaporator water boxes including nozzles, refrigerant suction pipe from evaporator to compressor, cold surfaces of compressor, refrigerant-cooled motor, and auxiliary piping. Seal all seams and joints to provide a vapor barrier. Paint exposed surfaces of insulation to match other painted parts.

2.6. ELECTRICAL

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- A. Factory installed and wired, and functionally tested at factory before shipment.
 - 1. Single-point, field-power connection to circuit breaker. Minimum withstand rating shall be as required by electrical power distribution system, but not less than 65,000A.
 - a. Branch power circuit to each motor, electric heater, dedicated electrical load, and controls with disconnect switch or circuit breaker.
 - 2. NEMA 1, motor-circuit protector (circuit breaker) with field-adjustable, short-circuit-trip set point.
 - 3. NEMA 2-rated motor controller for auxiliary motors, hand-off-auto switch, and overcurrent protection for each motor. Provide variable frequency controller for each variable-speed motor furnished.
- B. Control-circuit transformer with primary and secondary side fuses.
- C. Terminal blocks with numbered and color-coded wiring to match wiring diagram. Spare wiring terminal block for connection to external controls or equipment.
- D. Factory-installed wiring outside of enclosures shall be in metal raceway except make terminal connections with not more than a 24-inch length of liquid-tight or flexible metallic conduit.
- E. Provide a ground terminal and a terminal block or individual connectors for phase connection.

2.7. MOTOR CONTROLLER

- A. Enclosure: Factory installed, unit mounted, NEMA 250, Type 4 with hinged full-front access door with lock and key.
- B. Control Circuit: Powered from integral control power transformer.
- C. Overload Relay: Shall be sized according to UL 1995 or shall be an integral component of chiller control microprocessor.

2.8. VARIABLE FREQUENCY CONTROLLER

- A. Variable speed drives shall be factory-mounted and wired on the chiller to provide a single-point field-power termination to the chiller and its auxiliaries.
- B. Variable speed drives shall comply with Section 230514 with the following additional requirements:
 - 1. Enclosure: Unit mounted, NEMA 250, Type 4, with hinged full-front access door with lock and key complying with Section 230511.
 - 2. Manual bypass is not required.
- C. Minimum Displacement Primary-Side Power Factor: 98 percent with harmonic filter.

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- D. Coordinate harmonic distortion limits with the requirements of Section 230514 and IEEE 519.
- E. Active Harmonic Distortion Filter: Factory mounted and wired to limit total voltage and current distortion to 5 percent.
- F. Operating Requirements: Capable of driving full load, without de-rating at 32F to 120F ambient temperature range, up to 95 percent (non-condensing) relative humidity and up to 3300-foot elevation.
 - 1. Overload Capability: 1.05 times the full-load current for 7 seconds.
 - 2. Starting Torque: As required by compressor-drive assembly.
 - 3. Isolated control interface to allow controller to follow control signal over a 10:1 speed range.
 - 4. To avoid equipment resonant vibrations, provide critical speed lockout circuitry to allow bands of operating frequency at which controller shall not operate continuously.
 - 5. Capable of being restarted into a motor coasting in either the forward or reverse direction without tripping.
- G. Internal Adjustability Capabilities:
 - 1. Minimum Output Frequency: 6 Hz.
 - 2. Maximum Output Frequency: 60 Hz.
 - 3. Acceleration: 2 seconds to a minimum of 60 seconds.
 - 4. Deceleration: 2 seconds to a minimum of 60 seconds.
 - 5. Current Limit: 30 percent to a minimum of 100 percent of maximum rating.
- H. Self-Protection and Reliability Features: Subjecting the controller to any of the following conditions shall not result in component failure or the need for replacement:
 - 1. Over-temperature.
 - 2. Short circuit at controller output.
 - 3. Ground fault at controller output. Variable frequency controller shall be able to start a grounded motor.
 - 4. Open circuit at controller output.
 - 5. Input under-voltage.
 - 6. Input overvoltage.
 - 7. Loss of input phase.
 - 8. Reverse phase.

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9. AC line switching transients.
10. Instantaneous overload, line to line or line to ground.
11. Sustained overload exceeding 100 percent of controller rated current.
12. Starting a rotating motor.
- I. Motor Protection: Controller shall protect motor against overvoltage and under-voltage, phase loss, reverse phase, overcurrent, over-temperature, and ground fault.
- J. Visual Indication: On face of controller enclosure or chiller control enclosure; indicating the following conditions:
 1. Power on.
 2. Run.
 3. Overvoltage.
 4. Line fault.
 5. Overcurrent.
 6. External fault.
 7. Motor speed (percent).
 8. Fault or alarm status (code).
 9. DC-link voltage.
 10. Motor output voltage.
 11. Input kilovolt amperes.
 12. Total power factor.
 13. Input kilowatts.
 14. Input kilowatt-hours.
 15. Three-phase input voltage.
 16. Three-phase output voltage.
 17. Three-phase input current.
 18. Three-phase output current.
 19. Three-phase input voltage total harmonic distortion.
 20. Three-phase input current total harmonic distortion.
 21. Output frequency (Hertz).
 22. Elapsed operating time (hours).

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23. Diagnostic and service parameters.

- K. Operator Interface: At controller or chiller control panel; with start-stop and auto-manual selector with manual-speed-control potentiometer.
- L. Cooling: Air-cooled.
- M. Control Relays: Auxiliary and adjustable time-delay relays.
- N. Chiller Capacity Control Interface: Equip chiller with adaptive control logic to automatically adjust the compressor motor speed and the compressor pre-rotation inlet vane position independently to achieve maximum part-load efficiency in response to sensor inputs that are integral to the chiller controls.

2.9. CONTROLS

- A. Control: Standalone and microprocessor based, with all memory stored in nonvolatile memory so that reprogramming is not required on loss of electrical power.
- B. Enclosure: Unit mounted, NEMA 250, Type 4, hinged or lockable; factory wired with a single-point, field-power connection and a separate control circuit.
- C. Operator Interface: Multiple-character digital or graphic display with dynamic update of information and with keypad or touch-sensitive display located on front of control enclosure. In either imperial or metric units selectable through the interface, display the following information:
 - 1. Date and time.
 - 2. Operating or alarm status.
 - 3. Fault history with not less than last 10 faults displayed.
 - 4. Set points of controllable parameters.
 - 5. Trend data.
 - 6. Operating hours.
 - 7. Number of chiller starts.
 - 8. Outdoor-air temperature or space temperature if required for chilled-water reset.
 - 9. Entering- and leaving-fluid temperatures of evaporator and condenser.
 - 10. Difference in fluid temperatures of evaporator and condenser.
 - 11. Fluid flow of evaporator and condenser.
 - 12. Fluid pressure drop of evaporator and condenser.
 - 13. Refrigerant pressures in evaporator and condenser.
 - 14. Refrigerant saturation temperature in evaporator and condenser shell.

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15. Compressor refrigerant suction and discharge temperature.
 16. Compressor bearing temperature.
 17. Motor bearing temperature.
 18. Motor winding temperature.
 19. Oil temperature.
 20. Oil discharge pressure.
 21. Phase current.
 22. Percent of motor rated load amperage.
 23. Phase voltage.
 24. Demand power (kilowatts).
 25. Energy use (kilowatt-hours).
 26. Power factor.
 27. For chillers equipped with variable frequency controllers and harmonic filters, include the following:
 - a. Output voltage and frequency.
 - b. Voltage total harmonic distortion for each phase.
 - c. Supply current total demand distortion for each phase.
 - d. Inlet vane position.
 - e. Controller internal ambient temperature.
 - f. Heatsink temperature.
- D. Control Functions:
1. Manual or automatic startup and shutdown time schedule.
 2. Entering and leaving chilled-water temperatures, control set points, and motor load limits. Evaporator fluid temperature shall be reset based on return-water or outdoor-air temperature as indicated in the Sequence of Operation.
 3. Current limit and demand limit.
 4. Condenser-fluid temperature.
 5. External chiller emergency stop.
 6. Variable evaporator flow.
- E. Manually Reset Safety Controls: The following conditions shall shut down chiller and require manual reset:

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1. Low evaporator pressure or temperature; high condenser pressure.
 2. Low evaporator fluid temperature.
 3. Low oil differential pressure.
 4. High or low oil pressure.
 5. High oil temperature.
 6. High compressor-discharge temperature.
 7. Loss of condenser-fluid flow.
 8. Loss of evaporator fluid flow.
 9. Motor overcurrent.
 10. Motor overvoltage.
 11. Motor under-voltage.
 12. Motor phase reversal.
 13. Motor phase failure.
 14. Sensor- or detection-circuit fault.
 15. Processor communication loss.
 16. Motor controller fault.
 17. Extended compressor surge.
 18. Excessive air-leakage detection (low-pressure chillers only)
- F. Trending: Capability to trend analog data of up to five parameters simultaneously over an adjustable period and frequency of polling.
- G. Security Access: Provide electronic security access to controls through identification and password with at least three levels of access: view only; view and operate; and view, operate, and service.
- H. Control Authority: At least four conditions: Off, local manual control at chiller, local automatic control at chiller, and automatic control through a remote source.
- I. Communication Port: RS-232 port, USB 2.0 port, or equivalent connection capable of connecting a printer and a notebook computer.
- J. BAS Interface: Factory-installed hardware and software to enable the BAS to monitor, control, and display chiller status and alarms.
1. BACnet per ASHRAE 135 communication interface with the BAS shall enable the BAS operator to remotely control and monitor the chiller from an operator workstation. All control features and monitoring points displayed locally at chiller control panel shall be available through the BAS.

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2.10. FINISH

- A. Paint chiller, using manufacturer's standard procedures, except comply with the following minimum requirements:
 - 1. Provide at least one coat of primer with a total dry film thickness of at least 2 mils.
 - 2. Provide at least two coats of alkyd-modified vinyl enamel, epoxy or polyurethane finish with a total dry film thickness of at least 4 mils.
 - 3. Paint surfaces that are to be insulated before applying the insulation.
 - 4. Paint installed insulation to match adjacent uninsulated surfaces.
 - 5. Color of finish coat to be manufacturer's standard.

2.11. ACCESSORIES

- A. Flow Switches: Chiller manufacturer shall furnish a flow switch for each evaporator and condenser and verify field-mounting location before installation.
- B. Vibration Isolation: Chiller manufacturer shall furnish vibration isolation for each chiller.
 - 1. Neoprene Pad:
 - a. Two layers of 0.375-inch thick, ribbed- or waffle-pattern neoprene pads separated by a 16-gage, stainless-steel plate.
 - b. Fabricate pads from 40 to 50 durometer neoprene.
 - c. Provide stainless-steel square bearing plate to load the pad uniformly between 20 and 40 psig with a 0.12- to 0.16-inch deflection.
- C. Sound Barrier:
 - 1. Furnish removable and reusable sound-barrier covers over the compressor housing, hermetic motor, compressor suction and discharge piping, and condenser shell.
 - 2. Provide for repeated installation and removal without use of tape or caulk.
 - 3. Inner and outer cover shall consist of a PTFE-impregnated fiberglass cloth enclosing heavy-density, needled fiberglass insulation material with a mass-loaded vinyl acoustic barrier.
 - 4. Covers shall be double sewn and lock stitched with edges folded and sewn so no raw cut edges are exposed.
 - 5. Form covers around control devices, gages, conduit, piping, and supports without degrading sound-barrier performance.

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6. Continuously lap all exposed seams at least 2 inches for better sound containment.
7. Permanently label each section of cover to indicate its location, description, size, and number sequence.
8. Randomly place stainless-steel quilting pins to prevent covers from shifting and sagging.

2.12. NOISE CHARACTERISTICS

- A. Noise Rating: 85 dBA sound power level when measured according to ARI 575. Provide factory-installed sound treatment if necessary to achieve the performance indicated.

2.13. SOURCE QUALITY CONTROL

- A. Perform functional run tests of chillers before shipping.
- B. Factory test and inspect evaporator and condenser, according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
- C. For chillers located indoors, rate sound power level according to AHRI 575.

PART 3 - EXECUTION

3.1. EXAMINATION

- A. Examine chillers before installation. Reject chillers that are damaged.
- B. Examine roughing-in for equipment support, anchor-bolt sizes and locations, piping, and electrical connections to verify actual locations, sizes, and other conditions affecting chiller performance, maintenance, and operations before equipment installation.
 1. Final chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. CHILLER INSTALLATION

- A. Equipment Mounting:
 1. Install chillers on cast-in-place concrete equipment bases.
 2. Comply with requirements for vibration isolation and seismic control devices specified in Division 23.

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- B. Maintain manufacturer's recommended clearances for service and maintenance.
- C. Charge chiller with refrigerant and fill with oil if not factory installed.
- D. Install separate devices furnished by manufacturer and not factory installed.
- E. Install brush-cleaning system control panel adjacent to chiller control panel.

3.3. CONNECTIONS

- A. Comply with general requirements for piping and specialties as specified in Division 23.
- B. Install piping adjacent to chiller to allow service and maintenance.
- C. Evaporator Fluid Connections: Connect to evaporator inlet with shutoff valve, strainer, flexible connector, thermometer, and plugged tee with pressure gage. Connect to evaporator outlet with shutoff valve, balancing valve, flexible connector, flow switch, thermometer, plugged tee with shutoff valve and pressure gage and drain connection with valve. Make connections to chiller with a flange or mechanical coupling.
- D. Condenser-Fluid Connections: Connect to condenser inlet with shutoff valve, strainer, flexible connector, thermometer, and plugged tee with pressure gage. Connect to condenser outlet with shutoff valve, balancing valve, flexible connector, flow switch, thermometer, plugged tee with shutoff valve and pressure gage and drain connection with valve. Make connections to chiller with a flange or mechanical coupling.
- E. Refrigerant Pressure Relief Device Connections: Extend vent piping to the outdoors without valves or restrictions. Comply with ASHRAE 15. Connect to chiller pressure relief device with flexible connector and dirt leg with drain valve.
- F. Connect each chiller drain connection with a union and drain pipe, and extend pipe, full size of connection, to floor drain. Provide a shutoff valve at each connection.

3.4. STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify that refrigerant charge is sufficient and chiller has been leak tested.
 - 3. Verify that pumps are installed and functional.
 - 4. Verify that thermometers and gages are installed.
 - 5. Operate chiller for run-in period.
 - 6. Check bearing lubrication and oil levels.

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7. Verify that refrigerant pressure relief device is vented outside.
 8. Verify proper motor rotation.
 9. Verify static deflection of vibration isolators, including deflection during chiller startup and shutdown.
 10. Verify and record performance of fluid flow and low-temperature interlocks for evaporator and condenser.
 11. Verify and record performance of chiller protection devices.
 12. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.
- B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assembly, installation, and connection.
- C. Prepare test and inspection startup reports.

3.5. DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain chillers.

END OF SECTION