KCDA PURCHASING COOPERATIVE
18639- 80TH Ave S. ◆ P.O. Box 5550 ◆ Kent, WA 98064-5550 ◆ Phone 425-251-8115 ◆ Fax 253-395-5402 ◆ www.kcda.org

INVITATION FOR BIDS
Bid #27-270, HVAC Building System Installs (NEW)

Due December 3, 2026 On or before 2:00 p.m., PST

King County Directors' Association (KCDA) is a purchasing cooperative owned by the school districts of Washington State and is located in Kent, Washington. KCDA's membership is made up of, but not restricted to, public school districts, private schools, municipalities, political subdivisions and other public agencies primarily located in Washington, Oregon, Idaho, Alaska, and Montana. Representing over 1 million students and over 5,000 ship to locations, KCDA purchases approximately $190 million worth of products, equipment and services on behalf of the membership.

The KCDA Purchasing Cooperative (hereinafter "KCDA") requests bids from manufacturers, authorized sales rep, authorized contractors, or temporary HVAC equipment rentals who can offer HVAC Building Systems and Installs (NEW) to its member agencies.

Total estimated value of this contract is approximately $3.4 million to 4.2 million annually.

All bids must be submitted electronically through Public Purchase at www.publicpurchase.com. You must be registered to respond. Mailed, Faxed, or emailed bids will not be accepted. Responses must be submitted by the date and time shown above or they will not be accepted nor considered. For information regarding electronic bidding, please contact Public Purchase at vendorsupport@publicpurchase.com .

All questions pertaining to this bid shall be entered in the "Questions" section of Public Purchase. No emails or phone inquiries will be accepted.

Electronic copies of this IFB are available via KCDA's website at www.kcda.org. Click on Contracts & Bids / Vendor Bids. Materials can also be downloaded online via Public Purchase www.publicpurchase.com. If you need assistance with the documents, please contact the Contract Specialist named below.

Karl Durham, Contract & Procurement Specialist
Kdurham@kcda.org
(425)251-8115 X 131

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KING COUNTY DIRECTORS' ASSOCIATION
INVITATION FOR BIDS

NOTE: THERE ARE NO FEES ASSOCIATED WITH KCDA BIDS WHEN USING PUBLIC PURCHASE

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I. INTRODUCTION

A. KCDA MEMBERSHIP
KCDA is a purchasing cooperative owned by 294 public school districts in the state of Washington and is located in Kent, Washington. KCDA's membership is made up of, but not restricted to public school districts, private schools, municipalities, political subdivisions and other public agencies located in but not limited to Washington, Oregon, Idaho, Alaska, and Montana. Representing over 1 million students and over 5,000 ship to locations, KCDA purchases approximately $190 million worth of products, equipment and services on behalf of the membership.

All school districts and other public agencies who are or may become members of the KCDA Purchasing Cooperative may participate in the contract awarded as a result of this bid. A complete list of all school districts and other public agencies that are members of the KCDA Purchasing Cooperative is available on our web site at www.kcda.org.

Restrictions of merchandise or services to any locale of KCDA membership must be clearly noted in a bid response.

B. INTERPRETATION OF BID DOCUMENTS
Any person contemplating submitting a bid for the proposed contract that is in doubt as to the true meaning of any part of the bid documents, or finds discrepancies in or omissions from the bid

documents, shall submit to KCDA a written request for an interpretation or correction thereof. Such request shall be submitted and received not later than 10 days prior to the date specified for receipt of bid responses. Any interpretation or correction of the bid documents will be made in writing by addendum duly issued to all bidders. KCDA will not be responsible for any other explanation or interpretation of the bid documents.

C. EXCEPTIONS
Any exceptions to the terms and provisions of this invitation for bids shall be made by signed and dated attachment to the bid response. Do not add to, delete from, or amend in any manner the bid form. Exceptions pertaining to payment or delivery terms must be noted within Attachment B. All noted exceptions are subject to approval and acceptance by KCDA.

D. CONTRACT DEFAULT
Your bid is subject to all terms and conditions as herein established in this bid request form and include price, quality and delivery. Subsequent failure to provide items bid in accordance to the purchase order and bid delivery schedule will constitute contract default, and, after due written notification, allows the Purchasing Department to declare the contract void and to purchase the merchandise on the open market. Any additional costs to procure and distribute replacement product will be charged to the bidder.

E. BIDDER RESPONSIBILITY
All bidders shall thoroughly examine and be familiar with the bid documents including all exhibits and attachments. The failure or omission of a bidder to receive or examine any form, instruments, addendum, or other document shall in no way relieve any bidder from obligations with respect to your bid or to the contract. The submission of a bid shall be taken as prima facie evidence of compliance with this section.

F. BIDDER FINANCIAL RESPONSIBILITY
KCDA has the right to request financial information from any bidder to evaluate the bidder's ability to meet the terms and conditions of any and all contracts that may be established by acceptance of the offer contained in the bid. Additional confirmation from the bidder's supplier(s) that the delivery terms of the contract will be met may be required. KCDA reserves the right to reject any or all bids and/or bidders unable to prove they are financially able to provide the quantity of merchandise they have offered in response to this bid invitation.

G. MINORITY AND WOMEN OWNED BUSINESSES
KCDA encourages all minority and women owned businesses to participate in the bid process. Washington State law does not allow KCDA to provide any financial advantage for minority and women owned businesses who participate, however, KCDA believes that a diverse range of suppliers benefits all.

II. GENERAL PROVISIONS

A. BID OPENING
All bids submitted for supplies and/or services will be opened in public at the time, date and place, and in the manner herein specified, and all bidders are invited to be present at the opening of such bids. A final recap will be available from KCDA after bid awards are made. Under no circumstances will a bid be considered if filed after the hour specified in the invitation for bids. To be considered for award, a bid

response must be submitted according to the instructions and prior to the date and time indicated within. The times listed in any referenced schedule are Pacific Standard Time.

KCDA will not accept bids that are sent via fax or email.
The KCDA address is:

King County Director's Association
Purchasing Department
18639 80th Ave S
Kent, WA 98032

B. MODIFICATIONS/WITHDRAWAL OF BID

Bids may be modified or withdrawn by written notice received prior to the exact hour and date specified for receipt of bids. Bids may also be modified or withdrawn in person by an authorized representative, who must sign a receipt for this action. Returned and/or unsubmitted bids shall become the responsibility of the bidder. Bids that are not resubmitted on or before the exact time of the opening may not be considered for award.

C. QUALITY STANDARDS

Whenever an item in this invitation for bid is described using a manufacturer's name, brand or catalog number, it shall be construed solely for the purpose of indicating the standards of quality. Brands of equal quality shall be considered, except where otherwise stated, provided the bidder specifies the brand, model and number on which their bid is submitted and submits samples, specifications and other information necessary to properly evaluate the bid. Any bid containing a brand which is not of equal quality at the sole discretion of KCDA, shall not be considered. KCDA will accept bids on new product only. Merchandise that has been refurbished or has been in storage for a long period of time is unacceptable.

D. REJECTION OF ANY OR ALL RESPONSES

KCDA reserves the right to accept or reject any or all bids and to waive informalities or irregularities in any bid or in the bidding process.

E. BINDING CONTRACT

It is understood that the offer represented by a bidder and an award made by the KCDA Board of Directors to the successful bidder, forms a binding contract. KCDA, under certain circumstances, will allow the assignment of contracts; however, no assignment can occur to another entity without written agreement from KCDA.

F. ESTIMATED QUANTITIES

Quantities, if shown on the bid forms, are estimated requirements of the members for whom KCDA acts as purchasing department based on historical ordering information. Such quantities represent the total quantity the cooperative anticipates purchasing over the life of the contract period. KCDA reserves the right to order more or less than the quantities stated in the bid. Any minimum order requirements or ordering restrictions should be so indicated as part of the bid response and will be subject to bid evaluation. Quantities ordered are based on actual requirements and the successful bidder will fulfill that requirement regardless of the manufacturer's policies regarding order completion.

G. CONTRACT PERIOD

Following an award, a contract would be issued as an annual contract from the date of KCDA Board acceptance, or as noted under Special Provisions. After the initial period, there is a possibility of three (3) renewals for the duration of one (1) year each. Pricing is firm for the first/initial period.

H. ORDERING SCHEDULE

Based upon accepted minimum order requirements set by the successful bidder, KCDA or KCDA members may submit orders once a contract has been established by the KCDA Board of Directors. KCDA reserves the right to place orders anytime, for any amount, during the contract period based upon any accepted minimum quantities and time restrictions set forth by the successful bidder attached to their bid response. Quantities and delivery dates listed in this bid are presented as a guide to the bidder, but will not be binding or limiting to the KCDA and its members.

I. EXTENDED CONTRACT PERIOD

By mutual written agreement of KCDA Board of Directors and the successful bidder, the initial contract period may be extended for additional periods, not to exceed extensions of 3 years total beyond the initial contract. Such extensions shall be at the awarded price in effect at the time and under the same terms and conditions as the original contract unless otherwise allowed under terms of the contract. Requests for extension shall be submitted to KCDA a minimum of 30 days prior to expiration of the existing contract term.

J. REQUESTED SAMPLES

It is the bidder's responsibility to provide samples, **if requested by KCDA**, for a bid response to be considered. Submit the samples to King County Directors' Association, 18639 80th Ave. S., Kent, Washington, 98032 **when requested**. All requested samples must be labeled with the bid number, KCDA's item number (as applicable) and bidder's name, and be submitted no later than seven (7) working days after request.

DO NOT ENCLOSE YOUR BID WITH THE SAMPLES.

K. DISPOSAL OF SAMPLES

Bid samples not picked up within 30 days after the bid award date shall become the property of the King County Directors' Association and shall be disposed of by distribution to the member school districts or by donation as deemed appropriate by KCDA.

L. KCDA NON-DISCRIMINATION STATEMENT

Bidders who desire to provide KCDA with equipment, supplies and/or professional services must comply with the following Non-Discrimination requirements. During the performance of this contract, the Bidder agrees as follows:

Bidder will comply with all Local, State and Federal Laws prohibiting discrimination with regard to race, creed, color, national origin, sex, marital status, age or the presence of any sensory, mental or physical handicap.

The Bidder will not discriminate against any employees or applicant for employment because of race, creed, color, national origin, sex, marital status, age or the presence of any sensory, mental or physical handicap.

The Bidder will, in all solicitations or advertisements for employees placed by or on behalf of the Bidder, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, sex, marital status, age or the presence of any sensory, mental or physical handicap.

Any Bidder who is in violation of these requirements, or an applicable nondiscrimination program shall be barred forthwith from receiving bid awards or any purchase orders from KCDA.

M. INDEMNIFICATION

The Vendor agrees to defend, indemnify and hold harmless KCDA and the member agency, and their respective officers, officials, employees and volunteers from any and all claims, injuries, damages, losses or suits including attorney fees arising out of or resulting from the acts, errors or omissions in performance of this Agreement, except for injuries and damages caused by the sole negligence of KCDA or the member agency. Should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Vendor, KCDA or the member agency and their respective officers, officials, employees, and volunteers, the Vendor's liability , including the duty and cost to defend, hereunder shall be only to the extent of the Vendor's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the Vendor's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purpose of this indemnification. Use of this contract certifies that the waiver of immunity specified by this provision was mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of the Agreement.

N. PATENT INDEMNIFICATION

By accepting this order, Bidder agrees to save and hold harmless KCDA, its successors, assigns, customers and the users of its products from any liability, loss, damage, judgments, or awards, including costs and expenses arising out of any actions, claims, or proceedings for infringement of (a) any United States Letters Patent purporting to cover the material to be delivered to Buyer under this order, or its normal intended use and (b) any trademarks appearing with the material on delivery to KCDA; and further, Bidder agrees to defend KCDA, its successors, assigns, customers and the users of its products at Bidder's expense in all such actions, claims, or proceedings, provided that KCDA shall give Bidder prompt notice in writing of all such actions, claims, and proceedings, as well as notice of infringement and threats of suit for infringement.

O. SAFETY REQUIREMENTS

All items furnished under this bid, where applicable, must comply with all OSHA, WISHA, UL Approval, including but not limited to chapter 296-46B of the Washington Administrative Code and any other safety requirements imposed by KCDA, State or Federal agencies. Bidder further agrees to indemnify and hold KCDA harmless from all damages assessed against KCDA as a result of Bidder's failure to comply with the acts and the standards issued thereunder and for the failure of the items furnished under this order to so comply.

P. RISK OF LOSS

Regardless of F.O.B. point, Bidder agrees to handle all claims and bear all risk of loss, injury, or destruction of goods and materials ordered herein which occur prior to delivery, and such loss, injury, or destruction shall not release Bidder from any obligation hereunder.

Q. REJECTION
All goods or materials purchased herein are subject to approval by KCDA or the KCDA member. Any rejection of goods or materials resulting from non-conformity to the terms, conditions and specifications of an order, whether held by KCDA, KCDA member, or returned will be at Bidder's risk and expense.

R. SHIPMENT IDENTIFICATION
All invoices, packing lists, packages, shipping notices, instructions, correspondence and all other written documents affecting any KCDA order shall contain the applicable purchase order number. A packing list must be provided with every shipment being made to KCDA indicating all the products shipped and back ordered; also, every carton shipped pursuant to this order must be marked with the contents therein.

S. NO BID RESPONSE
If no offer is to be submitted at this time, do not return this bid. A letter should be forwarded to KCDA advising whether future bids of this type are desired. Failure of the recipient to notify KCDA of your intentions may result in removal of your name from the bidder's list.

T. BID AWARDS
Following evaluation, bids recommended for award will be awarded by the KCDA Board of Directors to the lowest responsible bidder meeting specifications and price as primary factors. KCDA reserves the right to award items in groups for ordering efficiencies, to meet minimum requirements (if accepted), to make multiple awards, or to reject any and all bids or portions thereof, to waive any minor irregularities in the bid process, or to make no awards, if in its sole judgment the best interests of KCDA and its members will not be served.

U. TERMINATION
Termination for Convenience: KCDA may terminate this contract, in whole or in part, at any time and for any reason by giving thirty (30) calendar days written termination notice to Vendor. Termination charges shall not apply unless both parties subsequently agree upon them. Where termination charges are applicable, both parties agree to negotiate in good faith and to limit the extent of negotiations to valid documented expenses incurred by Vendor prior to date of termination. KCDA will not be responsible for stock that the Vendor has on hand that has not been requested via a purchase order. Should the parties not agree to a satisfactory settlement, the matter may be subjected to mediation and/or legal proceedings.

V. RECIPROCITY
Where allowed by law, KCDA may review responses from bidders outside the State of Washington to see if those bidders are from states that use restrictions against companies from the State of Washington when they respond to public bids. KCDA may use this information in making bid awards when multiple bidders appear to have submitted the same pricing, terms and conditions on a particular bid item or items.

W. FORCE MAJEURE
Except for payments of sums due, neither party shall be liable to the other, nor be deemed in default under this contract, if and to the extent that such party’s performance of this contract is prevented by reason of force majeure. The term “force majeure” means an occurrence that is beyond the control or responsibility of the party affected and occurs without its fault or negligence, including, but not limited to the following: acts of God; acts of the public enemy; war; riots; strikes; industry-wide labor disputes; civil disorders; fire; flood; snow; earthquakes; tornadoes or violent winds; hail storms; lockouts;

injunctions-intervention-acts, or failures or refusals to act by government authority; and other similar occurrences beyond the control or responsibility of the party declaring force majeure, which such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring it notifies the other party of the existence of the force majeure, and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with the contract. The party receiving the notice of force majeure may contest the declaration of a force majeure. Force majeure shall not include late deliveries of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies, internal labor disputes, or similar occurrences. If either party is delayed at any time by force majeure, the delayed party shall notify the other party in writing of such delay within forty-eight (48) hours.

III. PREPARATION OF BID

A. SUBMITTAL OF BID RESPONSE
Submission of a response as designated in the bid instructions signifies that bidder will be bound to the terms and conditions of this bid unless an exception is made part of the submission and accepted by KCDA.

Bidder must submit the Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion form, included as Attachment A. Bids received without this form may be considered non-responsive.

B. SIGNATURE
Bid responses are required to include the firm name, address, telephone number, contact name and authorized signature, signed in longhand by the person duly authorized to sign bid documents identified in the solicitation. Every attempt will be made to answer all questions. Where a response or addendum cannot be obtained prior to the bid opening, it is understood that the Bidder will assume the more stringent of requirements.

C. QUESTIONS/ADDENDUMS
All questions must be submitted in writing to the KCDA Purchasing Agent.

D. F.O.B. SHIPMENTS
Prices must be quoted in the UNIT SPECIFIED, PACKAGING INCLUDED and except for cash discount percentages, quoted NET, F.O.B. THE DELIVERY POINT specified in this bid, including the unloading of the merchandise. KCDA typically redistributes products to its members unless designated or requested as a direct ship method. All merchandise shipped to KCDA must be in packaging that can be reshipped, via common carrier, without damage. Any damage incurred due to insufficient packaging will be the responsibility of the supplier.
No charges will be allowed for special handling, packing, wrapping, bags, containers, reels, etc.

E. PRODUCT IDENTIFICATION
All bid responses must confirm the manufacturer number, brand name or grade specified in the bid invitation and such identification shall be binding on the bidder. Bidders must insert the manufacturer number, brand name, grade and any other information necessary to clearly and properly describe and identify the articles they propose to furnish. If necessary attach additional documentation for this purpose. Alternates should be noted as an "alternate item" and properly identified with brand,

manufacturer number, etc. The bidder is not to alter the grade, brand, manufacturer number or description as given in the bid invitation. Questions on how to properly submit an alternate item must be directed to the named Purchasing Agent responsible for this bid.

F. QUANTITY PER UNIT OF MEASURE

Where applicable, if the quantity or volume per unit differs from that specified in the bid invitation for any particular item, it is mandatory to note such difference in the bid response. Any bid submitted not showing the quantity per unit of measure will be construed to mean the bidder will furnish the unit of measure as specified in the bid invitation and such interpretation shall be binding on the bidder. If the bidder provides a unit of measure different from the KCDA requirement, it will be construed as an alternate item. Any merchandise subsequently received in other than KCDA units must be repackaged to correct units. Repackaging is the responsibility of the bidder who has entered into the contract. Payment will not be tendered until the merchandise has been packaged to KCDA units. If necessary, KCDA reserves the right to repackage merchandise to KCDA units and charge the bidder for all fair and reasonable associated costs. KCDA requires that upon award, the successful bidder establish a factory pack unit and ship in that unit for the duration of the contract.

G. ALTERNATE SPECIFICATIONS

An alternate specification is where the bidder is offering a product or service significantly different than outlined in the bid request, and typically applies to items listed as “No Substitute”.

For alternate specifications to be considered, a request must be submitted to KCDA 15 working days prior to the bid opening. If accepted by KCDA, a clarification will be issued to all bidders on a bid addendum. Alternate specifications may be accepted if they meet the conditions above and they are deemed to be in the best interest of KCDA and their member agencies.

H. ERRORS/CORRECTIONS

Any erasures, interlineations or other correction in the bid must be initialed by the person(s) signing the bid. Corrections must be provided within the terms of the vendor response and accepted by KCDA.

I. INVOICING

It is understood that invoices issued by the manufacturer/dealer will reflect the shipping date of materials. It is also understood that actual delivery and install or training at the end user location may be delayed from the date of shipment. Subsequently, payment will be made after satisfactory delivery and acceptance by the end user of any quantity of merchandise shipped and/or installed. Advance discussion regarding payment terms on specific projects are recommended where this may occur. Where KCDA participates in the invoicing process, KCDA reserves the right to withhold payment to a vendor on a project until such time payment from the customer has been received.

Invoices enclosed with merchandise will not be accepted. Invoices shall contain the following information: purchase order number, item number, quantity ordered, quantity shipped, unit price, extension, terms and sales tax. Payments will be made on original invoicing only.

J. CASH DISCOUNTS/INVOICE PAYMENT TERMS

KCDA payment terms are Net-30 days. Cash discounts are encouraged and cash discount percent and terms may be entered on Attachment B. KCDA will subtract cash discount percentages where it is

deemed probable that KCDA will be able to take advantage of the offered discounts. KCDA will accept terms for as few as 15 days.

KCDA is required, by law, to process invoice payments through the King County Treasurer. Payment warrants can be issued weekly. The first day for start of terms shall begin with acceptance of delivery or installation by the end user or receipt of invoice, whichever is later. Invoices with discounts between 15 and 30 days will be paid within terms and net 30-day invoices will be paid on the first pay date after 30 days.

K. WASHINGTON STATE SALES TAX
Washington State sales taxes are not to be included in any items as part of the bid response, but will be added at the time of invoicing. All other taxes, including but not limited to any excise or business and occupation tax must be included in your bid price. The only taxes KCDA will pay upon invoice are the Washington State Sales tax.

IV. PRODUCT ACCEPTANCE

A. GENERAL POLICY
The Purchasing Department shall have the right to reject any and all articles that are not in strict conformity with requirements and specifications of the bid and the approved samples submitted by the bidder. The bidder must replace all rejected articles promptly with articles of quality equal to the specifications or samples submitted and remove rejected articles at his own expense. In the event of failure on the part of the bidder to promptly replace rejected articles, the Purchasing Department reserves the right to purchase same on the open market or of declaring the contract void. Any additional costs incurred to procure and distribute replacement product will be charged to the bidder.

V. BID PROTESTS

A. WHO MAY PROTEST
Only actual or potential bidders with a direct economic interest in the outcome may file a bid protest.

B. WHAT CAN BE PROTESTED
Acceptance or rejection of a bid proposal, award or proposed award of a bid, allegedly restrictive specifications, omission of a required provision, ambiguous or indefinite evaluation factors are all factors that can be protested.

C. HOW TO FILE A PROTEST
Protests may be filed with either the KCDA purchasing agent who issued the bid or with the KCDA purchasing manager.
Protests should include the following information:
1) Include the name, street address, email address, telephone and fax numbers of the protestor or their representative.
2) Be signed by the protestor or its representative.
3) Identify the solicitation or bid contract number.
4) Set forth a detailed statement of the legal and factual grounds of protest, including copies of relevant documents.
5) Set forth all information establishing that the protester is an interested party for the purpose of filing a protest.

6) Set forth all information establishing the timeliness of the protest.
7) Specifically request a ruling by the KCDA purchasing manager.
8) State the form of relief requested.

Appeals of protest ruling must be made in the following order:
1) KCDA Purchasing Manager,
2) KCDA Executive Director
3) KCDA Board of Directors.

D. WHEN TO PROTEST
Protests alleging improprieties in a solicitation must be filed before the bid opening time and date if the improprieties were apparent prior to that time. A solicitation defect that was not apparent before that time must be protested not later than 2 business days after the defect became apparent.

E. WHERE TO FILE A PROTEST
Protests must be sent to:
KCDA Purchasing Cooperative
PO Box 5550
Kent, WA 98064-5550

F. AFTER A PROTEST IS FILED
Upon receipt of a protest, KCDA will acknowledge receipt of the protest in writing either by mail, fax or email. The only time an acknowledgement is not sent will be if the protest is summarily dismissed. Protestors may be contacted for a meeting to review the protest. Within 10 days KCDA will make a decision as to the merits of the protest and notify the protestor of the decision and any remedies in the matter.

VI. PRODUCT TOXICITY REPORTS

A. HAZARDOUS CHEMICAL COMMUNICATION
In order to comply with the revised OSHA and Globally Harmonized System of Classification and Labelling of Chemicals (GHS), all bidders offering products on this bid that contain any toxic chemicals that may be harmful to the end user must provide a Safety Data Sheet (SDS). Awarded vendors are to use the list of awarded items presented at time of contract signing and submit an SDS sheet for each item, referencing the KCDA item number, within 30 days of the contract start date, to kcdasds@kcda.org.

Any hazardous material tax must be included in the price of the product bid. KCDA will not be held responsible for any additional taxes (other than Washington State Sales Tax) and will not pay them if noted as a separate line item on invoices.

VII. SPECIAL NOTATIONS

ATTACHMENT A - Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
ATTACHMENT B - Terms by Manufacturer
ATTACHMENT C - Special Provisions

KCDA PURCHASING COOPERATIVE
18639- 80TH Ave S. ◆ P.O. Box 5550 ◆ Kent, WA 98064-5550 ◆ Phone 425-251-8115 ◆ Fax 253-395-5402 ◆ www.kcda.org

INVITATION FOR BIDS
BID #27-270, HVAC Building System Installs (NEW)

BID DUE DATE: December 3, 2026 On or Before 2:00 PM PST

Attachment A

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion

In submitting the proposal to provide products and/or services as outlined in the bid specifications, we hereby certify that we have not been suspended or in any way excluded from Federal procurement actions by any Federal agency. We fully understand that, if information contrary to this certification subsequently becomes available, such evidence may be grounds for non-award or nullification of a bid contract.

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, Participant's Responsibilities.

Signed: _____

Title: _____

Firm: _____

Address: _____

City, State, Zip: _____

Date: _____

Email _____

Note: Electronic acceptance of these terms and conditions signifies compliance with above statement. (Line item Whse bids)

KCDA PURCHASING COOPERATIVE
18639- 80TH Ave S. • P.O. Box 5550 • Kent, WA 98064-5550 • Phone 425-251-8115 • Fax 253-395-5402 • www.kcda.org

ATTACHMENT B
Terms by Manufacturer
Bid #27-270, HVAC Bldg System Insta
Bid Due Date: December 3, 2026
On or Before 2:00 PM PST

Bidder Name:		Address:
Phone:	Fax:	City, State, Zip:

TERMS BY MANUFACTURER: Please provide the minimum order required per manufacturer and lead times.

SPECIFIC DISCOUNTS: Please provide quoted discounts from the manufacturer's current list prices. It is the bidders responsibility to submit updated price lists during the contract year, when the contract allows, otherwise discounts will be taken from the most current on file. The manufacturer must already be present in this bid to be considered. Discounts must include shipping/ freight charges. A current price list and catalog must be provided at the time of bidding.
NOTE: DISCOUNTS MAY BE USED IN DETERMINING AWARDS.

Manufacturer	Minimum Order	Lead Time	Discount Amount	Discount Detail	FOB - Freight FACTORY - Cost will be extra DESTINATION - Cost is included in discount
Example: ABC Company Inc	$1,000	1-2 Weeks	25%	2024 List Price Sheet	Destination

Authorized Agents Signature _____ Date _____ Bid Number _____ Name of Firm _____

KCDA PURCHASING COOPERATIVE
18639- 80TH Ave S. ◆ P.O. Box 5550 ◆ Kent, WA 98064-5550 ◆ Phone 425-251-8115 ◆ Fax 253-395-5402 ◆ www.kcda.org

INVITATION FOR BIDS

Bid #27-270, HVAC Building System Installs (NEW)

ATTACHMENT C – Special Provisions

THESE INSTRUCTIONS SUPERCEDE AND TAKE PRECEDENCE OVER ANY OPPOSING LANGUAGE IN THE STANDARD TERMS AND CONDITIONS

A. SOLICITATION OBJECTIVES

KCDA is seeking manufacturers, providers or dealers/distributors to provide current and emerging HVAC Building Systems and Installs to its members.

Total approximate value of this contract is between $3.4 million to $4.2 million annually. However KCDA does not guarantee any minimum or maximum value or number of orders.

It is KCDA's intent to establish an annual multi-state contract with the potential of up to three (3) one-year extensions if mutually agreed between KCDA and the awarded vendor(s). Bidders must be a manufacturer, authorized sales rep, authorized contractors, or temporary equipment rentals to provide KCDA members with HVAC Building Systems and Installs in Washington, with the preferred ability to service surrounding member states (ex: Oregon, Idaho, Montana, Alaska).

Contracts established by KCDA are available for use by all public schools, colleges, universities, cities, counties and other government agencies throughout the nation. Participation in KCDA is not required of any governmental agency; however, participation does provide the legally required competition for contracts for commonly purchased products and services, thereby saving the entity the time and expense of a required competitive process. As allowed by specific state statutes, members can issue purchase orders for any amount without the necessity to prepare their own IFB or gather necessary quotations.

Bidders must be a manufacturer, authorized sales rep, authorized contractor, or provide HVAC equipment rentals to provide KCDA members with HVAC Building Systems and Installs in Washington, with the preferred ability to service surrounding member states (ex: Oregon, Idaho, Montana, Alaska). The Bidder must also include a list identifying the states within which they are authorized to sell, service and install. If a portion of a state is serviced, bidder must specifically list the portion which is serviced. Bidder can list by county, region or territory. Bidder must provide the list as a separate document when submitting a response. The bidder may propose different pricing and rates for different installation areas as necessary to accommodate applicable wage rates and costs. Bidders must have a local sales presence that either reside or can be contacted within the additional states named to enable KCDA members to have onsite consultation, needs assessment, installation, integration and training.

It is the intent of KCDA to award a contract, whereas KCDA member agencies will benefit from the following types of products or services that may include (installation, startup, commissioning, indoor or outdoor air quality assessments, project management, temporary equipment rentals that encompass a brand range of HVAC Systems such as:

- HVAC Building Systems
- Unitary Package and Spill Systems
- Chillers
- Boiler Units / Water Heaters
- Air Handlers
- Dehumidification Units
- Variable Refrigerant Flow
- Dust Collector System
- Pumps
- DDC Controls

- Variable Refrigerant Flow / Multi Split / Single Split Systems
- Air Terminal Devices and Heating
- Fan Coils
- Unit Ventilators
- Refrigeration
- Other HVAC Products and Technologies
- Geothermal and Water-Source Heat Pumps
- Indoor Air Quality Product and Devices
- UV Sterilization Systems
- Humidifiers Units
- Inverters
- HVAC Filtration and Air Purification Systems
- Inverters
- Annual Inspection and Install Services for new items proposed

By conducting this solicitation, KCDA intends to provide savings and to offer its members a choice of HVAC Building Systems and Installs (NEW) at discounted pricing.

KCDA's purpose is to:

- Cooperatively serve our members and associate members through a continuous effort to explore and solve present and future purchasing needs.
- Provide government agencies opportunities for greater efficiency and economy in acquiring goods and services.
- Equalize purchasing power for smaller agencies that are unable to command the best contracts for themselves.
- Maintain credibility and confidence in business procedures by maintaining open competition for purchases and complying with purchasing laws and ethical business practices.
- Provide competitive price solicitations which meet the procurement laws of our members.
- Secure multi-state volume purchasing contracts which are measurable, cost effective and continuously exceed our members' expectations.
- Provide quick and efficient delivery of goods and services by contracting with "high performance and quality" vendors who understand our members' needs.

B. TIMELINE

October 28, 2026 & November 4, 2026 Advertised as Bid #27-270 in DJC Seattle, Oregon

December 3, 2026	Bids due no later than 2:00 P.M. PST (Posted Online)
January 11, 2027	Award Recommendation
January 19, 2027	Board Approval
February 1st, 2027	Contract Start Date

C. SUBMISSION OF BIDS

Bidders are requested to submit pricing for Washington state per the drawings and specifications provided in this solicitation. KCDA requests pricing for its members in Oregon, Idaho, Montana and Alaska as well. Bidder is requested to submit either 1) separate price pages for each state being bid or 2) provide a pricing matrix that shows a price factor to be applied to the Washington state pricing in order to calculate the pricing for other states. Pricing must be provided as an Excel spreadsheet.

Bids will only be accepted by online submission through Public Purchase.

- KCDA reserves the right to reject any or all bids and to accept any proposal deemed most advantageous to KCDA members and to waive any informality in the bid process.
- Bids shall be submitted as stated in this solicitation. Deviations to any terms, conditions and/or specifications shall be conspicuously noted in writing by the bidder and shall be included with the bid (Attachment C). No cross outs or delineations shall be made to the existing document. Exceptions and deviations will be considered in award evaluation. KCDA reserves the right to reject any deviations or exceptions stipulated in a bidder response, and may subsequently disqualify such bid if such terms are unacceptable to KCDA. Language to the effect that the bidder

does not consider this solicitation to be part of a contractual obligation may result in the bid being disqualified.

- Withdrawals of bids will not be allowed for a period of 60 days following the opening. Withdrawal of bids prior to the opening date will be permitted.
- Addendums, if required, will be issued by KCDA through Public Purchase. Addendums will also be posted on the KCDA website (www.kcda.org) under Contracts & Bids – Vendor Bids. Addendums will not be mailed or e-mailed. It is bidder's responsibility to check for issuance of any Addendums prior to submitting a bid. **All Addendums must be signed and returned with the bid document, or the bid may be considered non-responsive.**
- All documents requiring signature shall be signed by a person having authority to sign on behalf of the bidder. Electronic signatures will be accepted..

D. BID FORMAT

1. Preparation of the Bid Response

a. The IFB is published in one PDF document on the KCDA Website and the Public Purchase website, and consists of the following documents:
   - **Cover Page** indicates the due date and where to send bid documents to
   - **Terms & Conditions**
   - **Attachment A** Debarment Statement **(signature required)**
   - **Attachment B** Terms by Manufacturer **(signature required)**
   - **Attachment C** Special Provisions **(signature required)**
   - **Attachment D** Pricing Workbook **(completion required)**
   - **Attachment E1** Miscellaneous Fees **(signature required)**
   - **Attachment E2** Services Price Schedule **(complete, as necessary)**
   - **Attachment F** Deviations **(signature required)**
   - **Company Profile (signature required)**
   - **Attachment G -** Certification of Compliance **(signature required)**
   - **Attachment H -** EDGAR Certification Form **(signature required)**

b. Bid forms requiring signatures shall be submitted by a person authorized to sign the bid. Failure to properly sign the bid documents or to make other notations as indicated will result in the response being deemed non-responsive

c. Corrections and/or modifications received after the opening time will not be accepted, except as authorized by applicable rule, regulation or statute and KCDA.

d. In case of an error in extension of prices in the bid, unit prices shall govern.

e. Periods of time, stated as a number of days, shall be in calendar days, not business days.

f. It is the responsibility of all Bidders to examine the entire IFB package, to seek clarification of any item or requirement that may not be clear, and to check all responses for accuracy before submitting a bid. Negligence in preparing a bid confers no right of withdrawal after due time and date.

g. The Bidders' ability to follow the bid preparation instructions set forth in this solicitation will also be considered to be an indicator of the Bidders' ability to follow instructions should they receive an award as a result of this solicitation. Any contract between the KCDA member and a Bidder requires the delivery of information and data. The quality of organization and writing reflected in the bid will be considered to be an indication of the quality of organization and writing which would be prevalent if a contract was awarded. As a result, the bid will be evaluated as a sample of data submission.

2. Format of Bid Response

Bidders shall submit all required documents electronically through Public Purchase. Upload separate files for each of the requested sections below, each containing the required documents. Responses should be direct, concise, complete and unambiguous. Bidders failing to organize bids in the manner requested risk being considered non-responsive if bids are not easily read

and understood. Awards will be made more efficiently and timely by following the required format.

Company Profile/Information

- Company Profile form
- Responses should include a brief introduction informing KCDA of the qualifications and experience of the Bidder, along with a brief company history.
- Reference requirements: (3-5). Projects should be of similar size and complexity, preference given for government contracts.

Response Forms (will be combined and should be submitted together)

- Attachment A - Debarment Statement
- Attachment C - Special Provisions
- Attachment F – Deviations
- Attachment G - Certification of Compliance with Wage Payment Statutes
- Attachment H - EDGAR Certification Form

Pricing Pages (should be submitted separately from the response forms)

- Attachment B - Terms by Manufacturer (option: bidder may include this information in their own format as part of the pricing pages)
- Attachment D – Pricing Workbook (Excel format)
- Attachment E1 – Direct Ship Misc Fees
- Attachment E2 – Service Price Schedule
- Include all relevant pricing as KCDA cannot consider pricing that is not provided in the proposal.

Product Line Brochures and Literature

Marketing Plan

- List tradeshows and conferences. Show examples of flyers or describe how bidder will market the KCDA contract.

Authorized Dealers/Vendor Partners

- Provide letters from each manufacturer stating authorization to deal.
- List all dealers/vendor partners authorized to utilize this contract through the vendor.

Addendums

E. VENDOR RESPONSIBILITIES

- Designate and assign a dedicated senior-level contract manager (one authorized to make decisions) to the KCDA contract. This employee will have a complete copy and must have working knowledge of the contract.
- Train and educate sales staff on what the KCDA contract is including pricing, who can order from the contract, terms/conditions of the contract and the respective ordering procedures for each state. It is expected that the awarded vendor will lead with the KCDA contract.
- Develop a marketing plan to support the KCDA contract in collaboration with respective KCDA member agencies. Plan should include, but not be limited to, a website presence, electronic mailings, sales flyers, brochures, mailings, catalogs, etc.
- Create a KCDA-specific sell sheet with a space to add a KCDA logo and contact information for use by KCDA and the awarded vendors local sales representatives to market within each state.

- Have ongoing communication with the Contract and Procurement Specialist at KCDA and the KCDA member agencies.

- Attend two (2) “touch base” meetings at KCDA per year. One of those meetings may be participating in the KCDA Vendor Fair.
- Participate in national and local conference trade shows to promote the KCDA contract.
- Increase sales over the term of the KCDA contract.

F. EQUIPMENT & RELATED PRODUCTS

1. Products – New

   a. All materials, parts, hardware, and components provided under this contract must be new, unused, and of current standard production. All items supplied shall be sourced from manufacturers’ authorized distributors and must be actively marketed for commercial or institutional use.

   b. The awarded vendor is responsible for ensuring that these items are operable and installed in accordance with manufacturer’s specifications, applicable building codes, industry standards, and best practices required for public facilities.

2. Installation / Removal
   a. The installation and/or removal of contract items shall be performed in a professional manner. The members’ premises and equipment shall be left in a clean condition. The awarded vendor may be required to repair all damage and/or provide full compensation for damage to the member agencies’ premises and equipment that occurred during installation/removal.
   b. Personnel in charge of the installation must be available to coordinate installation with member agency’s internal staff. Qualified service support and technical personnel will be required to provide all necessary maintenance and repair. Installation dates and installation schedule must be approved by member agency.
   c. Installation crews may be working around students, teachers and general staff. Installation may require off hour and weekend work in order to accommodate and complete the project in the timeline required by the member agency. The member agency will try to accommodate access for installation during school/business hours; however, any plan that displaces staff, students or personnel will most likely create disruption to the ordinary daily schedule. After hours and weekend installations are preferred and will be so identified in the proposal to the member agency.
   d. Project Manager for the awarded vendor shall verify proper installation at multiple and various times throughout the duration of the installation.
   e. Upon successful completion of installation, test system functionality for all possible scenarios and document all outcomes.
   f. Installment requirements (electrical certifications, plumbing certifications, licenses, permits etc.).

3. Newly Installed Equipment or Related Product Problems

   a. Member agency will evaluate the performance of newly installed HVAC Building Systems (NEW) for a 15-day period after installation. If the performance is unsatisfactory, the member agency will immediately contact the awarded vendor to pursue corrective action and resolution of the problem. Resolution of performance problems may result in:
      - Repair or other action to correct the problem including training or modifications made to member’s satisfaction
      - The replacement of the product with another of the same brand and model, at no additional cost (including delivery and installation) to the member agency, or -
      - Return of the product with cancellation of the order at no charge to the member agency.

4. Inspection/Testing/Acceptance
   a. Inspections, tests, measurements, or other acts or functions performed by the member agency shall in no manner be construed as relieving the awarded vendor from full compliance with contract requirements. At a minimum, an installed piece must demonstrate

the capability of providing the functions and services specified in the manufacturer's published literature.

5. Maintenance, Repair and Service
    a. Maintenance, repair and service related to the operation of HVAC Building Systems must be provided to member agency.
    b. Excessive Service and Downtime: All components, spare parts, application software, and ancillary equipment supplied through this contract shall be capable of continuous operation. Therefore, awarded vendor shall guarantee that all items will be operational at least 98% of normal business hours. Items that develop a trend of requiring an excessive number of service calls shall be reported by the member agency to the awarded vendor or by the awarded vendor to the member agency as the situation warrants and a corrective action and resolution will be made in a manner that is best for the member agency.
    c. In the event that the performance of maintenance services under the contract results in a need to replace defective parts, such items may only be replaced by new parts. In no instance shall the awarded vendor be permitted to replace defective items with refurbished, remanufactured, or surplus items without prior written authorization of the member agency.
    d. Awarded vendor must guarantee the availability of repair parts for a minimum of five (5) years subsequent to member agencies acceptance of the contracted items.

6. Adding New Products and/or Services
    All HVAC Building Systems (NEW) must meet the scope of work to be added to the contract. Pricing shall be equivalent to the percentage discount for other products. Awarded vendor may replace or add product lines to an existing contract if the line is replacing or supplementing products on contract, is equal or superior to the original products offered, is discounted in a similar or to a greater degree, if it is within the same awarded manufacturer and if the products meet the requirements of the solicitation. No products may be added to avoid competitive procurement requirements. KCDA may require additions to be submitted with documentation from KCDA members demonstrating an interest in, or a potential requirement for, the new product or service. KCDA may reject any additions without cause.

8. Discontinued Products
    If a product or model is discontinued by the manufacturer, awarded vendor may substitute a new product or model if the replacement product meets or exceeds the specifications and performance of the discontinued model, it is within the awarded manufacturer and if the discount is the same or greater than the discontinued model.

NOTE: Listing the above specifications shall in no way relieve the awarded vendor from the responsibility to follow proper code and regulations.

G. TRAINING & SUPPORT

If applicable, please state specifically the amount of training which will be provided at no charge. Then list the charge per hour for additional training, if applicable (see Bid Sheet).

a. If specified by the member agency, staff in-service shall be offered following the installation. Training needs must be quantified and specified by the member agency. Awarded vendors shall provide appropriate pricing (if applicable) based upon each member agencies training need. It is understood that some training may be provided free of charge and some may incur charges. Please outline your training philosophy and related pricing structure.
b. If desired, follow up training may also be scheduled to further support usage and to identify any individual training needs. Please include follow up training pricing as well.

H. PUBLIC WORKS LANGUAGE

Vendor agrees that, in performance of the services required under this agreement, vendor shall abide by all federal, state, local and Washington law and regulations that may apply to construction and public works. It is the responsibility of the vendor to determine applicability and requirements of any such laws and to abide by them.

1. **Public Works**

   State of Washington statute requires workers be paid prevailing wages when employed on public works projects and on public building service maintenance contracts. (RCW 39.04.010, RCW 39.12.010 and 020) It is the contractor's responsibility to be acquainted with and comply with state regulations regarding payment of prevailing wages on public works projects. Prevailing wages are established by the Washington State Department of Labor and Industries and can be obtained on the web at https://secure.lni.wa.gov/wagelookup/ or by contacting Labor and Industries at 360-902-5335. A printed copy may also be requested from KCDA. KCDA serves all counties in Washington State. The county in which the project is located will be identified once a member initiates a request for the service, and the effective wage rate to be applied to a specific project is to be based on the date of this bid during the original contract term, and if contract extensions are granted, the prevailing wage rate in affect at the time of the latest extension.

   Application: The Public Works Act regulates wages paid to workers, laborers and mechanics performing public work. It does not apply to work that is clerical, executive administrative or professional in nature. It does not apply to work of a secretary, engineer or administrator, unless they are performing construction work, alteration work, repair work, etc. Prevailing wage application depends on the work that is performed, regardless of the worker's job title. (RCW 39.12.020 and WAC 296-128-510 through 530)

   Definition: Public Works is all work, construction, alteration, repair or improvement that is executed at the cost of the state or any other local public agency. This includes, but is not limited to, demolition, remodeling, renovation, road construction, building construction, ferry construction and utilities construction. (RCW 39.04.010)

   Public Building Service Maintenance Contracts: Prevailing wages are also required on all public building service maintenance (janitorial) contracts. (RCW 39.12.020)

   Identification of Licensed Subcontractors: RCW 39.30.060 Bids on public works—Identification, substitution of licensed subcontractors.

   (1) Every invitation to bid on a prime contract that is expected to cost $1,000,000 or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 or an institution of higher education as defined under RCW 28B.10.016 shall require each prime contract bidder to submit:

   (a) At the published bid submittal time, the names of the licensed subcontractors and proof of license with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in chapter 18.106 RCW; and electrical as described in chapter 19.28 RCW, or to name itself for the work, if it is licensed to perform the work for which it has named itself. Errors identified by the contracting agency in the proof of license information must be corrected by the bidder within 48 hours of submission; and

   (b) Within 48 hours after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of structural steel installation and rebar installation.

   (2) The prime contract bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the prime contract bidder must indicate which subcontractor will be used for which alternate. Failure of the prime contract

bidder to submit as part of the bid the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the prime contract bidder's bid nonresponsive and, therefore, void.

(3) Substitution of a listed subcontractor in furtherance of bid shopping or bid peddling before or after the award of the prime contract is prohibited and the originally listed subcontractor is entitled to recover monetary damages from the prime contract bidder who executed a contract with the public entity and the substituted subcontractor but not from the public entity inviting the bid. It is the original subcontractor's burden to prove by a preponderance of the evidence that bid shopping or bid peddling occurred. Substitution of a listed subcontractor may be made by the prime contractor for the following reasons:

(a) Refusal of the listed subcontractor to sign a contract with the prime contractor;
(b) Bankruptcy or insolvency of the listed subcontractor;
(c) Inability of the listed subcontractor to perform the requirements of the proposed contract or the project;
(d) Inability of the listed subcontractor to obtain the necessary bonding, insurance, or other statutory requirements to perform the work detailed in the contract;
(e) Refusal or inability to provide a letter of bondability from a surety company; or
(f) The listed subcontractor is barred from participating in the project as a result of a court order or summary judgment.

(4) The requirement of this section to name the prime contract bidder's proposed subcontractors applies only to proposed HVAC, plumbing, electrical, structural steel installation, and rebar installation subcontractors who will contract directly with the prime contract bidder submitting the bid to the public entity.

(5) This section does not apply to design-build requests for proposals under RCW 39.10.330, to general contractor/construction manager requests for proposals under RCW 39.10.350, or to job order contract requests for proposals under RCW 39.10.420.

Apprentice Utilization Requirements (AURs): RCW 39.04.320 Apprenticeship training programs—Public Works contracts—Adjustment of specific projects—Report and collection of agency data—Apprenticeship Utilization Advisory Committee created.

(1)(a)(i) Except as provided in (b) through (d) of this subsection, from January 1, 2005, and thereafter, for all public works estimated to cost $1,000,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices.

(ii) As of July 1, 2024, for all public works contracts awarded by a municipality estimated to cost $2,000,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices. For contracts advertised for bid on or after July 1, 2026, for all public works contracts awarded by a municipality estimated to cost $1,500,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices. For contracts advertised for bid on or after July 1, 2028, for all public works contracts awarded by a municipality estimated to cost $1,000,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices.

(b) For contracts advertised for bid on or after July 1, 2020, for all public works by the Department of Transportation estimated to cost $2,000,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices.
(c) For contracts advertised for bid on or after January 1, 2010, for all public works by a school district estimated to cost $1,000,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices.
(d) For contracts advertised for bid on or after January 1, 2012, for all public works by a four-year institution of higher education estimated to cost $1,000,000 or more, all specifications must require that no less than 15 percent of the labor hours be performed by apprentices.

(2) Awarding entities may adjust the requirements of this section for a specific project for the following reasons:

(a) The demonstrated lack of availability of apprentices in specific geographic areas;

(b) A disproportionately high ratio of material costs to labor hours, which does not make feasible the required minimum levels of apprentice participation;

(c) Participating contractors have demonstrated a good faith effort to comply with the requirements of this section; or

(d) Other criteria the awarding entity deems appropriate, which are subject to review by the Office of the Governor or the municipality's legislative authority if the awarding entity is a municipality.

(3) The secretary of the department of transportation shall adjust the requirements of this section for a specific project for the following reasons:

(a) The demonstrated lack of availability of apprentices in specific geographic areas; or

(b) A disproportionately high ratio of material costs to labor hours, which does not make feasible the required minimum levels of apprentice participation.

(4)(a) This section applies to public works contracts awarded by the state, to public works contracts awarded by school districts, to public works contracts awarded by state four-year institutions of higher education, and to public works contracts awarded by a municipality. However, this section does not apply to contracts awarded by state agencies headed by a separately elected public official or housing authorities as defined in RCW 35.82.020.

(b) Within existing resources, awarding agencies and municipalities are responsible for monitoring apprenticeship utilization hours by contractor. There must be a specific line item in the contract specifying that apprenticeship utilization goals should be met, monetary incentives for meeting the goals, monetary penalties for not meeting the goals, and an expected cost value to be included in the bid associated with meeting the goals. The awarding agency and municipality must report the apprenticeship utilization by contractor and subcontractor to the supervisor of apprenticeship at the Department of Labor and Industries by final project acceptance. The electronic reporting system that is being developed by the Department of Labor and Industries may be used for either or both monitoring and reporting apprenticeship utilization hours.

(c) In lieu of the monetary penalty and incentive requirements specified in (b) of this subsection, the Washington State Department of Transportation may use its three strike system for ensuring compliance including the allowance for a good faith effort.

(5)(a) The Department of Labor and Industries must provide information and technical assistance to affected agencies and municipalities, and collect the following data from affected agencies and municipalities for each project covered by this section:

(i) The name of each apprentice and apprentice registration number;

(ii) The name of each project;

(iii) The dollar value of each project;

(iv) The date of the contractor's notice to proceed;

(v) The number of apprentices and labor hours worked by them, categorized by trade or craft;

(vi) The number of journey level workers and labor hours worked by them, categorized by trade or craft; and

(vii) The number, type, and rationale for the exceptions granted under subsection (2) of this section.

(b) The Department of Labor and Industries and the municipal research and services center shall provide training, information, and ongoing technical assistance to municipalities in order to comply with apprenticeship utilization requirements. Training must include, but not be limited to, department of labor and industries reporting requirements, contract administration including sample contract language, and best practices on how a municipality's governing authority must adopt apprenticeship guidelines, including procedures, rules, and instructions to ensure

compliance relating to a contractor that seeks a good faith waiver of apprenticeship utilization requirements.
(c) The Department of Labor and Industries shall provide information and technical assistance with apprenticeship utilization reporting. The Department of Enterprise services shall make available sample contract language and provide contract administration advice pertaining to apprenticeship requirements.

(6) The Secretary of Transportation shall establish an apprenticeship utilization advisory committee, which must include statewide geographic representation and consist of equal numbers of representatives of contractors and labor. The committee must include at least one member representing contractor businesses with less than 35 employees. The advisory committee shall meet regularly with the Secretary of Transportation to discuss implementation of this section by the Department of Transportation, including development of the process to be used to adjust the requirements of this section for a specific project.

(7) At the request of the Senate Labor, commerce, research and development committee, the House of Representative's Commerce and Labor committee, or their successor committees, and the Governor, the Department of Enterprise Services and the Department of Labor and Industries shall compile and summarize the agency and municipality data and provide a joint report to both committees. The report must include recommendations on modifications or improvements to the apprentice utilization program and information on skill shortages in each trade or craft.

(8) All contracts subject to this section must include specifications that a contractor or subcontractor may not be required to exceed the apprenticeship utilization requirements of this section.

(9) This section establishes the minimum apprenticeship utilization requirements on public works contracts awarded by a municipality. Any standards or requirements relating to apprenticeship utilization established by any applicable local law or ordinance that are more favorable to apprentices than the minimum requirements under this section are not affected by this section and those more favorable laws apply and may be enforced as provided by law.

Reciprocity: In accordance with RCW 39.04.380 any bidding process for public works in which a bid is received from a nonresident contractor from a state that provides a percentage bidding preference, a comparable percentage disadvantage must be applied to the bid of that nonresident contractor. This does not apply to public works procured pursuant to RCW 39.04.155, 39.04.280 or other procurement exempt from competitive bidding.

2. Prevailing Wage

Definition: Prevailing Wage is the hourly wage, usual benefits and overtime, paid in the largest city in each county, to the majority of workers, laborers and mechanics. The rate is established by the Department of Labor and Industries for each trade and occupation employed in the performance of public work. If Federal funds are used, bidders must comply with provisions of Davis-Bacon Act.

Basic procedures: A Statement of Intent to Pay Prevailing Wages and Affidavit of Wages Paid must be filed and approved for the contractor and all subcontractors. No payments can be made until all contractors/subs have submitted an approved intent form. KCDA cannot release retainage until all contractors have an approved Affidavit of Wages Paid form certified by the Industrial Statistician. (RCW 39.12.030, 040, 042) Once the work is successfully completed, KCDA will release 95% of the project cost and withhold 5% retainage for 45 days as dictated by law. The final 5% will be paid when the following is completed: Receipt of approved Affidavit of Wages Paid Forms, releases from Washington State Department of Labor & Industries, Employment Security Department and the Department of Revenue, and acceptance of project completion to the satisfaction of the KCDA ordering member. **The cost of filing required Intents and Affidavits is the responsibility of the contractor, and may not be added as a line item charged to the member agency. All Intents**

and Affidavits must name the agency for whom work is being performed as the contract award agency, not KCDA.

Federally Funded Projects: In addition to the Federal Requirements of Section III, Housing and Urban Development (HUD) Terms and Conditions**,** Davis-Bacon prevailing wage requirements apply to public works construction contracts of $2,000 or more when a project includes any federal funding of any amount. When there is a difference between applicable state and federal prevailing wages for a particular classification of labor, contractors and subcontractors are required to pay the higher of the two prevailing wages. Applicable federal prevailing wage determinations can be found at https://sam.gov/content/wage-determinations. Contractors/Subcontractors must be knowledgeable and adhere to all federal prevailing wage requirements, including but not limited to, paying workers weekly and providing certified weekly payrolls for the contractor and subcontractors of any tier, to the member agency for their review and verification, as required in the Davis-Bacon Act and applicable U.S. Department of Labor regulations. Falsification of any prevailing wage payroll records may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of Title 18 and section 3729 of Title 31 of the United States Code. Contractor shall inform all subcontractors of the Davis-Bacon requirements and the prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses. Contractor must coordinate all requirements related to federal funded projects with the KCDA member agency.

3. Responsible Bidder

Before award, the bidder must meet the following state responsibility criteria and, if applicable, supplemental responsibility criteria to be considered a responsible bidder. The bidder is required to submit documentation demonstrating compliance with the criteria.

Low Responsible Bidder

State Responsibility Criteria**.** The bidder must meet the following state responsibility criteria:

1. At the time of bid submittal, have a current certification of registration in compliance with chapter 18.27 RCW.
2. Have a current Washington State Unified Business Identifier (UBI) number.
3. If applicable:
   a. Have Industrial Insurance (workers' compensation) coverage for the bidders' employees working in Washington State, as required in Title 51 RCW;
   b. Have a Washington State Employment Security Department number, as required in Title 50 RCW; and
   c. Have a Washington State excise tax registration number, as required in Title 82 RCW.
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
5. If bidding on a public works project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance for the one-year period immediately preceding the date of the bid solicitation.
6. Have received training on the requirements related to public works and prevailing wage under chapter 39.04 RCW and chapter 39.12 RCW. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this requirement.
7. Within the three-year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgement entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48 or 49.52 RCW.
   a. Before awarding a public works contract, the bidder shall submit a signed statement in accordance with chapter 5.50 RCW verifying under penalty of perjury that the bidder is in compliance with the responsible bidder criteria requirement above. (KCDA Certification of Compliance)

8. Supplemental Bidder Responsibility Criteria. If supplemental criteria apply to this project, the criteria are included as "Exhibit A". The bidder may make a written request to modify the supplemental criteria. Modification of supplemental criteria shall be at KCDA's discretion. Any modifications to the supplemental criteria shall be made by addenda prior to the bid submittal deadline.

Subcontractor Responsibility

The contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. The requirements of this section apply to all subcontractors regardless of tier.

At the time of subcontract execution, the contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

1. At the time of bid submittal, have a current certification of registration in compliance with chapter 18.27 RCW.
2. Have a current Washington State Unified Business Identifier (UBI) number.
3. If applicable:
   a. Have Industrial Insurance (workers' compensation) coverage for the bidders' employees working in Washington State, as required in Title 51 RCW;
   b. Have a Washington State Employment Security Department number, as required in Title 50 RCW; and
   c. Have a Washington State Excise Tax registration number, as required in Title 82 RCW.
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
5. Have an electrical contractor license, if required by Chapter 19.28 RCW;
6. Have an elevator contractor license, if required by Chapter 70.87 RCW;
7. Have a plumbing contractor license, if required by Chapter 18.106 RCW.

4. Payment & Performance Bond

The prime contractor shall provide a Performance and Payment Bond at 100% of the contract price to the KCDA member with a copy to KCDA before work begins. The only exception is for contracts of one hundred fifty thousand ($150,000) dollars or less. In this instance, at the option of the contractor, the member may in lieu of the bond retain ten percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the Department of Revenue, Employment Security Department, and the Department of Labor and Industries and settlement of any liens filed under Chapter 60.28 RCW, whichever is later. The bond shall be issued by a surety company authorized to do business in the State of Washington and shall be on standard forms used for public projects (RCW 39.08.010) and as directed by the KCDA member.

Performance and Payment bonds for KCDA members outside Washington must be provided by companies licensed to provide bonds for public entities in the member's state.

5. Licenses

The prime contractor shall possess and maintain in current status all federal, state, and local licenses, bonds, and permits required for the performance and delivery of any and all products and services offered in its response to the bid solicitation. Before submitting a bid, bidders must hold a current, valid contractor's license as required in Washington. The contractor's license must be in the name of the legal entity submitting and signing the bid. A bidder may not substitute a contractor's license held by a subcontractor or joint venture. Bidders submitting bids in Washington State without a valid contractor's license in the name of the bidder are in violation of RCW 18.27.020.

It is the responsibility of the prime contractor to ensure any subcontractors performing under this contract hold and maintain appropriate licenses.

KCDA reserves the right to request copies of licenses at any time during the contract. Copies of Licenses, upon request, must be submitted to the member prior to performing the work. The contractor agrees to keep and ensure subcontractors keep any required license, permit or bond current and in compliance with Washington rules, regulations and statutes, as well as in states outside Washington in which contractor performs work under this contract. For work performed for any Washington State School District, Public Agency or Municipality, the contractor must comply with the bidder responsibility requirements of RCW 39.04.350 prior to the KCDA member awarding a contract. The contractor must verify the responsibility of all subcontractors used in accordance with RCW 39.06.020.

6. Permits

Obtaining permits is the responsibility of the member. Awarded contractor may provide guidance and/or assistance in obtaining necessary permits. If contractor does obtain permits on behalf of member, all fees are viewed as a "pass through" with no upcharge to the member.

7. Certificate of Insurance

A certificate of insurance demonstrating current coverage of the types and amounts of insurance required by KCDA and the KCDA member must be provided to the KCDA member prior to performance of any work. In addition, the Commercial General Liability policies must be endorsed to name KCDA and the KCDA member as additional insureds. Such policies must be further endorsed to provide that the insurance is primary as respects KCDA and the KCDA member, and that any other insurance maintained by KCDA and the KCDA member shall be excess and not contributing insurance with the contractor's insurance. These endorsements must be provided along with the certificate of insurance. The KCDA member must approve the certificate of insurance and endorsements.

8. Acceptable Pricing Method

KCDA is unable to accept Alternative Costing Method quotations except in certain limited instances, (i.e. sole source) in which KCDA and vendor may mutually determine the Alternative Costing Method is acceptable. This will be the exception rather than the rule. RS Means or line item bid pricing is acceptable.

9. Progress Payments

The contractor shall be paid, upon submission of a proper Payment Request, the prices stipulated herein for work performed (less deductions, if any), in accordance with all payment and retainage instructions herein. Submitted Payment Requests must contain the following minimum information:

1. Contract Number
2. Bid item ID, bid quantity, unit, unit price and description as appropriate
3. Sales Tax as applicable

The Payment Request will be reviewed by the member before payment is made. If the member is in disagreement with the Payment Request, KCDA will issue a notice requesting a revised Payment Request.

KCDA, at its discretion, reserves the right to withhold payment on a given project, pending receipt of payment from the customer.

In accordance with RCW 51.12.050, KCDA reserves the right to deduct from the payment any outstanding industrial insurance premiums owed by the contractor or subcontractors.

10. Payment Retainage

In accordance with RCW 60.28 contract retainage [*not to exceed five percent of the moneys earned by the contractor toward completion of a public improvement contract*] shall be withheld and reserved in one of two ways:

1. As a trust fund for the protection and payment of 1) the claims of any person arising under the contract, and 2) the state with respect to taxes imposed pursuant to Titles 50, 51 and 82 RCW which may be due from such contractor. Upon completion of a contract, the member agency shall notify the Department of Revenue, the Employment Security Department, and the Department of Labor and Industries of the completion of contracts over thirty-five thousand dollars. KCDA will issue payment on the retainage amount forty-five days after notice from the KCDA member agency that the contract has been accepted as complete **or** upon receipt of all necessary releases, whichever is later.
2. Option of providing retainage bond for the full amount of the retainage (5% of the contract amount with a performance bond). This bond is separate from the performance bond under RCW 39.08.10. Providing a retainage bond means no retainage is withheld. If you choose to provide a retainage bond a copy of the bond must be submitted.

11. Force Majeure

Except for payments of sums due, neither party shall be liable to the other, nor be deemed in default under this contract, if and to the extent that such party's performance of this contract is prevented by reason of force majeure. The term "force majeure" means an occurrence that is beyond the control or responsibility of the party affected and occurs without its fault or negligence, including, but not limited to the following: acts of God; acts of the public enemy; war; riots; strikes; industry-wide labor disputes; civil disorders; fire; flood; snow; earthquakes; tornadoes or violent winds; hail storms; lockouts; injunctions-intervention-acts, or failures or refusals to act by government authority; and other similar occurrences beyond the control or responsibility of the party declaring force majeure, which such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring it notifies the other party of the existence of the force majeure and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with the contract. The party receiving the notice of force majeure may contest the declaration of a force majeure. Force majeure shall not include late deliveries of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies, internal labor disputes, or similar occurrences. If either party is delayed at any time by force majeure, the delayed party shall notify the other party in writing of such delay within forty-eight (48) hours.

I. PRICING

IFB - The bidder shall submit pricing on the Pricing Pages included or on Attachment B in this IFB. **Vendor bid pricing shall include a 2% administrative fee on all line items and charges.** The administrative fee must be part of the bid price. If you are bidding a catalog price less a discount, make sure the administrative fee is included in the net price to the member agency. Pricing must include the 2% KCDA service fee so the service fee is invisible to KCDA members.

For all HVAC Building System and Installs (NEW), pricing may be by line item or discount off manufacturer price list (Attachment B). Accessories and materials may be from other manufacturers or sources, but must be identified and priced in the IFB response either by item or via catalog discount. On the pricing sheet, list and group accessories and materials by manufacturer for ease of identification. Respondents will choose only one pricing method to be used per manufacturer. Alternative pricing methods shall be addressed in Attachment B. Proposals received that provide both for a single manufacturer will be found non-responsive.

Fixed prices shall be firm until each anniversary date of contract, unless there is an occurrence of one or more economic price adjustment contingencies outlined in the bid. If price adjustment contingencies occur, or not less than ninety (90) days prior to each contract anniversary date, awarded vendor may submit a

fully documented request for price adjustment to KCDA. The documentation must substantiate that any requested price increase was clearly unpredictable at the time of bid submittal and results from an increased cost to awarded vendor that was out of awarded vendor's control.

KCDA will review requests for fixed price adjustments to determine if the new prices or another option is in member agencies' best interests. If accepted, new fixed prices shall apply to the contract upon approval from KCDA. Price changes shall be a factor in contract renewal.

The awarded vendor agrees that the cost for any item bid on this contract may vary by state due to specific requirements or other jurisdictional impacts. If the overall cost is discounted or lowered for any member agency, however, the cost will be similarly lowered or discounted at the same time for all member agencies for the same scope, size and value. (If a KCDA member agency proposes to purchase a large volume of one product at one time and the awarded vendor agrees to provide an additional discount, that same volume discount would be available to any KCDA member agency.)

It is understood and agreed upon between Bidder and KCDA that the Bidder's pricing does not include the cost for any site specific conditions or requirements. Site specific requirements shall be addressed on a case by case basis at the time the order is placed. Any additional costs are to be priced by methods designated under "Options", or by RS Means, as indicated in bidder's response to this solicitation.

Warranty**:** Describe the warranties that apply to the products offered in the IFB response and when warranty date will commence. Identify any website links that cover warranty information. The manufacturer has the primary responsibility to honor a manufacturer' warranty. Awarded vendor agrees to assist the member agency reach a solution in a dispute with the manufacturer over a warranty's terms. Any extended manufacturer's warranty will be passed on to the member agencies. List any pricing applicable to warranties in Attachment D of the IFB response.

Risk of Loss or Damage: Awarded vendor shall retain title and control of all goods until they are delivered and received. All risk of transportation and all related charges shall be the responsibility of the awarded vendor. The awarded vendor shall file all claims for visible or concealed damage. The member agency will notify the awarded vendor and/or freight company promptly of any damaged goods and shall assist the freight company/awarded vendor in arranging for inspection. No F.O.B. vessel, car or other vehicle terms will be accepted.

Taxes: Member agencies, who have obtained HVAC Building Installs Systems (NEW) under the terms of this contract, will be responsible for payment of all taxes such as sales tax, property tax, etc. Awarded vendor must separately list all such taxes on member proposal and subsequent invoice.

J. FUNDING OUT CLAUSE

Any acquisition agreement with a KCDA member agency that exceeds one (1) year shall include a standard "funding out" clause. Such an acquisition is a commitment of the entity's current revenue only, provided the agreement contains either or both of the following provisions:

1. Retains to the entity the continuing right to terminate the contract at the expiration of each budget period during the term of the agreement.
2. Conditioned on a best efforts attempt by the entity to obtain appropriate funds for payment of the acquisition.

K. AUTHORIZED DEALERS/VENDOR PARTNERS

The bidder must secure from the manufacturer, if the bidder is not the manufacturer, a written guarantee executed by the manufacturer that the bidder is an authorized dealer of that manufacturer. This can be submitted as a Manufacturers Guarantee/Manufacturers Certificate, or a statement on the manufacturer's letterhead with corporate acknowledgement. Failure to provide will result in award disqualification for that manufacturer.

Bidder may propose a network of authorized dealers/vendor partners through whom the bidder intends to perform the contract. Member agencies may be directed to bidders network of authorized dealers/vendor partners for HVAC Building System Installs (NEW), however the awarded vendor shall be responsible for the actual job performance of each and every authorized dealer/vendor partner. This includes, but is not limited to proper ordering process and reporting, or submittal of 2% service fee. Unresolved problems with the authorized dealer/vendor partner may be referred to the awarded vendor for resolution. Bidders are to identify and list each of the authorized dealers/vendor partners they intend to involve in contract performance.

Awarded vendor must be capable of replacing authorized dealers/vendor partners found unsuitable to participate in performance on the KCDA contract, and establish new authorized dealers/vendor partners in a timely manner.

During the contract period, the awarded vendor or purchasing agent may remove an authorized dealer/vendor partner from the list of those designated to this contract at any time without further explanation or process. The awarded vendor may propose authorized dealer/vendor partner additions for consideration at any time throughout the contract provided;

- The request is in writing on awarded vendors letterhead.
- It is filed with the Purchasing Agent a minimum of 30 calendar days before the effective date of the proposed change;
- It clearly identifies the authorized dealers/vendor partners involved in the change;
- It is accompanied by documentation acceptable to the Purchasing Agent sufficient to warrant the change.

L. AWARD

1. Evaluation

   It is the intent of KCDA to award a contract based on a bidder's complete suite of products, services, and overall solution when deemed advantageous. Awards will be made to the lowest responsive and responsible bidder(s) meeting IFB terms, conditions, and specifications. To best serve KCDA member agencies, KCDA reserves the right to make a single aggregate award, multiple awards, or separate awards per unique product category. All awards are at the sole discretion of KCDA. KCDA reserves the right to reject any or all proposals, accept the proposal(s) deemed most advantageous, and waive any informalities or irregularities in the solicitation process.

   Awarded vendors will be required to turn in updated specifications for the manufacturers awarded.

   The following criteria will be used in evaluating responses to this IFB. An award is anticipated to be made to a bidder with the highest rating per manufacturer product line. Subsequently, multiple awards may be made.

Evaluation Criteria and Weight

Proper submission of proposal of Bid Documents	5
Vendor Compliance with codes and standards (Project Experience, Past Performance & References, L&I Licensing qualifications, Incident – Accident records, Staff qualifications)	25
Price – Excel Workbook Competitive cost for products, Energy consumption costs, Maintenance requirement costs, Value added services costs, and Life Cycle cost consideration	30
Technical Compliance details of products / projects	20

Meets exceeds all specifications, complete response to scope of work, equipment quality – reliability, compliance with applicable codes, vendor show a project implementation plan or schedule for any big projects	
Warranty and Service support Length of coverage on warranty of products, preventative maintenance offerings, local service capabilities, response time commitments, and available replacement parts	10
Energy Efficiency and System Performance on Products Vendor will show operating efficiency of proposed equipment in product brochures or the price list, Energy savings potential and Sustainability benefits will be shown in brochures, and Building automation integration capabilities shown in the price list or brochures.	10
TOTAL POSSIBLE POINTS	**100**

Clarification and/or Discussions

Clarification of a response may be necessary. KCDA will communicate with the bidder(s) for the purpose of eliminating minor errors, clerical errors, and/or irregularities. Clarification is accomplished by explanation or substantiation, either in response to an inquiry from KCDA or an inquiry initiated by a bidder. Clarification does not give a bidder the opportunity to revise, change or modify their response in any way. Discussion takes place after the initial receipt of proposals. KCDA reserves the right to conduct discussions with bidders whose responses are determined to be reasonably inclined toward receiving a contract award. Discussion may occur when oral or written communications between KCDA and the bidder are conducted for the purpose of clarifying information to determine the acceptability of a response. KCDA will not assist the bidder in bringing the bidder's response to the same level as other responses received by KCDA. Further, KCDA will make no indication of pricing or other information received from other bidders.

Competitive Range: KCDA reserves the right to establish a competitive range of acceptable responses as part of the evaluation process as defined herein. Responses below the competitive range will be determined to be unacceptable and will not receive further consideration.

M. ORDER PROCESS & REPORTING

1. The awarded vendor must verify that a customer is a KCDA member. A current list of member agencies is posted on the KCDA website under "Membership". If the customer is not posted on the KCDA website, the awarded vendor must verify membership with the KCDA Contract Specialist. If the customer is not a member, but is eligible to become a member, the Contract Specialist will give the customer instructions regarding the membership process.

2. The awarded vendor will submit a signed and dated proposal or quote to the KCDA member in accordance with the pricing awarded under this contract. **All line items and charges must include the KCDA 2% service fee as a part of the price to the member agency. Do not list the 2% fee as a separate line item.** The awarded vendor must specifically state the KCDA contract **#27-270** on the proposal to the KCDA member. The proposal should identify the member contact name, email address and phone number for the person responsible for approving the purchase. This information is critical, and if not provided, may be grounds for delaying the processing of the order as well as eventual payment to the vendor.

3. The KCDA member will draft and submit their purchase order, made out to KCDA, and a copy of the proposal to the Contract Specialist designated on the Awarded Contracts page. Upon KCDA's verification of membership and pricing, KCDA will create and forward a KCDA purchase order to the

designated point of contact at the vendor. The Contract Specialist will request additional information, such as scope of work and item/part numbers, along with pricing for each line item, as needed. Failure to provide adequate evaluation information may result in a delay of approval by Contract Specialist.

4. A copy of the order will be kept on file at KCDA.

5. The awarded vendor must not commence delivery, services or installation using the KCDA contract without receiving a purchase order from KCDA.

6. Orders processed against this contract with customers who are not KCDA members or without emailed approval from KCDA are in violation of contract specifications. Awarded vendors not following proper procedures may be removed from consideration for future awards.

7. Invoicing: The awarded vendor will send invoices to KCDA. KCDA will contact the member to make sure the job is complete or that a progress payment is agreed to. KCDA will then invoice the member. Upon receipt of payment from the member, KCDA will pay the vendor less the 2% service fee, withholding retainage, as necessary.

8. KCDA reserves the right to revise the ordering process above at its discretion, if deemed necessary for contract management or audit purposes. An implementation for change will be coordinated with the awarded vendor.

N. CHANGE ORDERS

A change order refers to changes in the proposal/statement of work originally agreed to by the member, vendor, and KCDA, as referenced on the original authorized KCDA purchase order.

Whether initiated by the member or vendor, all parties must agree to the cost adjustments to the project.

1. Change Order Process: When KCDA receives a change order signed/approved by both the member and the vendor, KCDA will review the proposal against the awarded contract and revise the original KCDA PO to the vendor by adding additional PO lines for each change order and forwarding a revised KCDA PO to the vendor, reflecting the new totals.

2. Revised PO Process: The member may email a revised PO to KCDA, attaching a copy of the change order or the proposal for review. Once KCDA verifies quoted prices against the contract, KCDA will revise the original KCDA PO to the vendor by adding additional PO lines for each change order and forwarding a revised KCDA PO to the vendor, reflecting the new totals.

- It is imperative to clearly communicate, and document all change order requests or directives and approvals, whether verbal, written, or emailed.

- No changes will be made to a KCDA PO unless authorized representatives of the member and vendor have agreed to the costs via signed change order or revised PO.

- Vendor must submit appropriate justification per contract documents to KCDA.

- The approved change order or revised PO, along with supporting proposal/documentation must be reviewed by KCDA for pricing and scope approval in order to update the existing PO.

- KCDA's Purchase Order must match the vendor Payment Application.

O. CHRISTIAN DOCTRINE

Any federal, state and local governing authority's/jurisdiction's statutes, codes, rules and regulations referenced and/or govern the products, services and activities relating to and are part of this solicitation, whether or not physically noted or included, shall be complied with and adhered to as required. It is sole responsibility of the Bidder to perform and complete any necessary research and investigation required to make themselves aware of and comply with this item.

Signature_____

Must be same signature that appears on the bid response forms

ATTACHMENT F

Deviations

Bid #27-270, HVAC Building System Installs (NEW)

INSTRUCTIONS:

1. If "NO" is checked below, complete this form by signing it at the bottom.
2. If "YES" is checked below, either insert answers into this form or create a Microsoft Word table format to provide narrative explanations of exceptions. If adding pages, the bidder's name and identifying information as to which item the response refers must appear on each page.
3. Scan this form plus any attachments into a single PDF document.
4. Title the file "Attachment F - Deviations".
5. Exceptions to local, state or federal laws cannot be accepted under this bid.

☐ **NO, this bidder does not have deviations (exceptions or alternates) to any terms, conditions and/or specifications listed in the bid documents.**

☐ **YES, this bidder has the following deviations to the terms, conditions and/or specifications listed in the bid documents.**

Section/Item	Specification (describe)	Details of Deviation

Signature _____

Attachment G - Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (October 28,2026), the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

_____
Bidder's Business Name

_____
Signature of Authorized Official*

_____
Printed Name

_____
Title

_____ _____ _____
Date City State

Check One:
Sole Proprietorship ☐ General Partnership ☐ LLC ☐ Corporation ☐

State of Incorporation, or if not a corporation, State where business entity was formed:

_____

If a co-partnership, give firm name under which business is transacted:

_____

** If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

KCDA PURCHASING COOPERATIVE
18639- 80TH Ave S. ◆ P.O. Box 5550 ◆ Kent, WA 98064-5550 ◆ Phone 425-251-8115 ◆ Fax 253-395-5402 ◆ www.kcda.org

Bid #27-270, HVAC Building System Installs (NEW)

Attachment H
Uniform Guidance "EDGAR" Certification Form
2 CFR Part 200

When a purchasing agency seeks to procure goods and services using funds under a federal grant or contract, specific federal laws, regulations, and requirements may apply in addition to those under state law. This includes, but is not limited to, the procurement standards of the Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards, 2 CFR 200, referred to as the "Uniform Guidance" or new "EDGAR". All Respondents submitting proposals must complete this EDGAR Certification form regarding the Respondent's willingness and ability to comply with certain requirements, which may apply to specific agency purchases using federal grant funds.

For each of the items below, the Respondent will certify its agreement and ability to comply, where applicable, by having the Respondent's authorized representative check, initial the applicable boxes, and sign the acknowledgment at the end of this form. If a Respondent fails to complete any item of this form, KCDA will consider and may list the response, as the Respondents are unable to comply. A "No" response to any of the items below may influence the ability of a purchasing agency to purchase from the Respondent using federal funds.

Violation of Contract Terms and Conditions

Provisions regarding Respondent default are included in KCDA's terms and conditions. Any contract award will be subject to such terms and conditions, as well as any additional terms and conditions in any purchase order, ancillary agency contract, or construction contract agreed upon by the Respondent and the purchasing agency, which must be consistent with and protect the purchasing agency at least to the same extent as KCDA's terms and conditions. The remedies under the contract are in addition to any other remedies that may be available under law or in equity.

Termination for Cause of Convenience

For a participating agency purchase or contract in excess of $10,000 made using federal funds, you agree that the following term and condition shall apply:

The participating agency may terminate or cancel any purchase order under this contract at any time, with or without cause, by providing seven (7) business days in advance written notice to the Respondent. If this agreement is terminated in accordance with this paragraph, the participating agency shall only be required to pay Respondent for goods and services delivered to the participating agency prior to the termination and not otherwise returned in accordance with the Respondent's return policy. If the participating agency has paid the Respondent for goods and services provided as the date of termination, Respondent shall immediately refund such payment(s).

If an alternate provision for termination of a participating agency's purchase for cause and convenience, including how it will be affected and the basis for settlement, is in the participating agency's purchase order, ancillary agreement or construction contract agreed to by the Respondent, the participating agency's provision shall control.

Equal Employment Opportunity

Except as otherwise provided under 41 CFR Part 60, all participating agency purchases or contract that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 shall be deemed to include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246,

"Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR Part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Respondent will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

The equal opportunity clause provided under 41 CFR 60-1.4(b) is hereby incorporated by reference. Respondent agrees that such provision applies to any participating agency purchase or contract that meets the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 and Respondent agrees that it shall comply with such provision.

Davis Bacon Act and Copeland "Anti-Kickback" Act

When required by Federal program legislation, Respondent agrees that, for all participating agency contracts for the construction, alteration, or repair (including painting and decorating) of public buildings or public works, in excess of $2,000, Respondent shall comply with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction sub agreements. In accordance with the statute, Respondent is required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specific in a wage determinate made by the Secretary of Labor. Also, Respondent shall pay wages not less than once a week.

Current prevailing wage determinations issued by the Department of Labor are available at https://sam.gov/content/wage-determinations. Respondent agrees that, for any purchase to which this requirement applies, the award of the purchase to the Respondent is conditioned upon Respondent's acceptance of wage determination. As this Project is also subject to Washington Prevailing Wage requirements, Respondent and its Subcontractors of all tiers must pay the higher of the two wages (Prevailing and Davis-Bacon) when they are not the same.

Respondent further agrees that it shall also comply with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each construction completion, or repair of public work, to give up any part of the compensation to which he is otherwise entitled under his contract of employment, shall be defined under this titled or imprisoned not more than five (5) years, or both.

Contract Work Hours and Safety Standards Act

Where applicable, for all participating agency purchases in excess of $100,000 that involve the employment of mechanics or laborers, Respondent shall comply with Sections 102 and 107 of the Contract Work Hours

and Safety Standards Act (40 U.S.C. 327-333), as supplemented by Department of Labor regulations (29 CFR part 5). Under Section 102 of the Act, each contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than 1 ½ times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Section 107 of the Act is applicable to construction work and provides that no laborer or mechanic shall be required to work in the surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Right to Inventions Made Under a Contract or Agreement

If the participating agency's federal award meets the definition of "funding agreement" under 37 CFR 401.2(a) and the recipient or sub-recipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance or experiments, developmental or research work under the "funding agreement," the recipient or sub-recipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Clean Air Act and Federal Water Pollution Control Act

Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended, contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA). When required, Respondent agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act.

Debarment and Suspension

Debarment and Suspension (Executive Orders 12549 and 12689), a contract award (see 2 CFR 180.222) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1966 Comp. p. 189) and 12689 (3 CFR Part 1989 Comp. p. 235), "Debarment and Suspension." SAM exclusions contain the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. Respondent certifies that the Respondent is not currently listed and further agrees to immediately notify KCDA and all participating agencies with pending purchases or seeking to purchase from the Respondent if Respondent is later listed on the government-wide exclusions in SAM, or is debarred, suspended, or otherwise excluded by agencies or declared ineligible under state statutory or regulatory authority other than Executive Order 12549. Respondent will comply, and shall assist the Client and KCDA in complying, with the provisions of all applicable acts, regulations and assurances; the following provisions of Education Department General Administrative Regulations (EDGAR) 34 CFR parts 76, 77, 81, 82, 84, 97, 98, and 99; the OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Non procurement) in 2 CFR part180, as adopted and amended as regulations of the Department in 2 CFR part 3485; and the Uniform Guidance in 2 CFR part 200, as adopted and amended as regulations of the Department in 2 CFR part 3474.

Byrd Anti-Lobbying Amendment

Byrd Anti-Lobbying Amendment (31 U.S.C. 1352), Respondents that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered

by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that take place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

Procurement of Recovered Materials

For participating agency purchases utilizing Federal funds, Respondent agrees to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act where applicable and provide such information and certifications as a participating agency may require to confirm estimates and otherwise comply. See 2 CFR 200.323. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery, and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Profit as a Separate Element of Price

For purchases using federal funds in excess of $250,000, a participating agency may be required to negotiate profit as a separate element of the price. See 2 CFR 200.324(b). When required by a participating agency, Respondent agrees to provide information and negotiate with the participating agency regarding profit as a separate element of the price for a particular purchase. However, Respondent agrees that the total price, including profit, charged by the Respondent to the participating agency shall not exceed the awarded pricing, including any applicable discount, under the Respondent's contract with KCDA.

General Compliance with Participating Agencies

In addition to the foregoing specific requirements, Respondent agrees, in accepting any purchase order from a participating agency, it shall make a good faith effort to work with a participating agency to provide such information and to satisfy requirements as may apply to a particular purchase or purchases including, but not limited to, applicable record keeping and record retention requirements as noted in the Federal Acquisition Regulation, FAR 4.703(a).

Bid # 27-270, HVAC Bldg System Installs (NEW)

Attachment H
Uniform Guidance "EDGAR" Certification Form
2 CFR Part 200

By initialing the table (1-12) and signing below, I certify that the information in this form is true, complete and accurate and that I am authorized by my business to make this certification and all consents and agreements contained herein.		
Respondent Certification (By Item)	**Respondent Certification:** **YES**, I agree or **NO**, I do NOT agree	**Initial**
1. Violation of Contract Terms and Conditions		
2. Termination for Cause of Convenience		
3. Equal Employment Opportunity		
4. Davis-Bacon Act		
5. Contract Work Hours and Safety Standards Act		
6. Right to Inventions Made Under a Contract or Agreement		
7. Clean Air Act and Federal Water Pollution Control Act		
8. Debarment and Suspension		
9. Byrd Anti-Lobbying Amendment		
10. Procurement of Recovered Materials		
11. Profit as a Separate Element of Price		
12. General Compliance with Participating Agencies		

_____
Name of Business

_____
Signature of Authorized Representative

_____
Printed Name

_____
Date

KCDA PURCHASING COOPERATIVE
18639- 80TH Ave S. ◆ P.O. Box 5550 ◆ Kent, WA 98064-5550 ◆ Phone 425-251-8115 ◆ Fax 253-395-5402 ◆ www.kcda.org

Company Profile

IFB # 27-270, HVAC Building System Installs (NEW)

COMPANY CONTACT INFORMATION

Company Name: _____ Website: _____

Company Address: _____

City: _____ State: _____ Zip: _____

Contact Person: _____ Title: _____

Contact Phone: _____ Contact Email: _____

Washington State Department of
Labor & Industries Contractor's License No. _____

State of WA UBI No. _____

State of WA Employment
Security Department No. _____

Washington State Excise Tax Registration No. _____

Federal Tax ID No. _____

SAM.gov – Unique Entity ID_____

BACKGROUND

Note: *Generally, in high level contracts, KCDA will not accept an offer from a business that is less than five (5) years old or which fails to demonstrate and/or establish a proven record of business. If the bidder has recently purchased an established business or has proof of prior success in either this business or a closely related business, provide written documentation and verification in response to the questions below. KCDA reserves the right to accept or reject newly formed companies based on information provided in this response and from its own investigation of the company.*

This business is a ☐ public company ☐ privately owned company.

In what year was this business started under its present name? _____

Under what other or former name(s) has your business operated? _____

_____

Is this business a corporation? ☐ No ☐ Yes. If yes, please complete the following:

Date of incorporation:_____ State of incorporation: _____

Name of President:_____

Name(s) of Vice President(s): _____

Name of Secretary: _____

Name of Treasurer: _____

Is this business a partnership? ☐ No ☐ Yes. If yes, please complete the following:

Date of organization:_____ State founded:_____

Type of partnership, if applicable: _____

Name(s) of general partner(s): _____

Is this organization individually owned? ☐ No ☐ Yes. If yes, please complete the following:

Date of organization:_____ State founded: _____

Name of owner: _____

This organization is a form other than those identified above. ☐ No ☐ Yes.

IF THE ANSWER IS YES, describe the company's format, year and state of origin, and names and titles of the principals.

_____

_____

COMPANY HEADQUARTER LOCATION

Company Address: _____

City: _____ State: _____ Zip: _____

Main Phone Number: _____ How long at this address? _____

COMPANY BRANCH LOCATIONS

Branch Address: _____

City: _____ State: _____ Zip: _____

Branch Address: _____

City: _____ State: _____ Zip: _____

Branch Address: _____

City: _____ State: _____ Zip: _____

Branch Address: _____

City: _____ State: _____ Zip: _____

If more branch locations, insert information here or add another sheet with above information.

SALES HISTORY

Provide your company's annual sales for 2023, 2024 and 2025 in the United States by the various public segments:

	2023	2024	2025
K-12 (public & private), Educational Service Agencies	$	$	$
Higher Education Institutions	$	$	$

Counties, Cities, Townships, Villages	$	$	$
States	$	$	$
Other Public Sector & Non-profits	$	$	$
Private Sector	$	$	$
TOTAL	**$**	**$**	**$**

WORK FORCE

1. **Key Contacts and Providers:** Provide a list of the individuals, titles, and contact information for the individuals who will provide the following services:

Function	Name	Title	Phone	Email
Contract Manager				
Sales Manager				
Customer & Support Manager				
Distributors, Dealers, Installers, Sales Reps				
Consultants & Trainers				
Technical, Maintenance & Support Services				
Quotes, Invoicing & Payments				
Warranty & After the Sale				
Financial Manager				

2. **Sales Force:** Provide total number and location of salespersons employed by your company in the states of Washington, Oregon, Idaho, Montana and Alaska by completing the following: ***(To insert more rows, hit the tab key from the last field in the State column.)***

Number of Sales Reps	City	State

3. **Service/Support and Distribution Centers:** Provide the type (service/support or distribution) and location of centers that support the states of Washington, Oregon, Idaho, Montana and Alaska completing the following**:** ***(To insert more rows, hit the tab key from the last field in the State column.)***

Center Type	City	State

4. **In-house Resources:** Describe the business's current in-house workforce, equipment and facilities available to perform under this solicitation.

_____
_____
_____

5. **Sales Training:** Explain how your company will educate your sales staff on the KCDA contract including timing, methods, etc.

_____
_____
_____

ENVIRONMENTAL INITIATIVES

1. Describe how your products and/or services support environmental goals.

_____
_____
_____

2. Describe the company's "green" objectives (i.e. LEED, reducing footprint, etc.).

_____
_____
_____

COOPERATIVE CONTRACTS

1. Does your company currently have contracts with other cooperatives (local, regional, state, national)?
_____ YES _____ NO

If YES, identify which cooperatives and the respective expiration date(s).

_____

If YES and your company is awarded a KCDA Contract, which contract will you lead with in marketing and sales representative presentations (sales calls)?

_____

INDEPENDENT SUBCONTRACTORS, DISTRIBUTORS, INSTALLERS, ETC.

If the Bidder is not the sole manufacturer/provider of all goods and services provided under this contract, the following must be answered:

1. **Selection Criteria for Independent Providers:** Describe the criteria and process by which the business selects, certifies and approves subcontractors, distributors, installers and other independent services.

_____
_____
_____

2. **Current Subcontractors, Distributors, Installers, Etc.:** Provide a list of current subcontractors, distributors, installers and other independent service providers who are contracted to perform the type of work outlined in this bid in the states of Washington, Oregon, Idaho, Montana and Alaska. Include, if applicable, contractor license information and the state(s) wherein they are eligible to provide services on behalf of this business.

_____
_____
_____

DISCLOSURES

1. **Letter of Line of Credit or Annual Financial Report (REQUIRED):** Attach a letter from the business's chief financial institution indicating the current line of credit available in its name and evidence of financial stability for the past three calendar years (2023, 2024 and 2025). This letter should state the line of credit as a range (i.e., "credit in the low six figures" or "a credit line exceeding five figures"). If company is a publicly traded company a complete Annual Financial Report is required in place of Line of Credit Letter.
2. **Legal:** Does this business have actions currently filed against it? ☐ No ☐ Yes.

   IF YES, AN ATTACHMENT IS REQUIRED: List and explain current actions such as Federal Debarment (on US General Services Administration's "Excluded Parties List"), appearance on any state or federal delinquent taxpayer list, or claims filed against the retainage and/or payment bond for projects.

REFERENCES

Provide contact information for your company's largest public agency customers. (Minimum of 3 required).

Agency	Name	Title	Phone Number	Email
1.				
2.				
3.				
4.				
5.				

Signature _____

Must be same signature that appears on the bid response forms

27-270 HVAC UNIT SPECIFICATION BID SHEET

A. Scope of Work

Provide complete, factory-assembled HVAC equipment as indicated on the drawings and equipment schedules. The HVAC unit shall include all components, accessories, controls, safeties, and factory-installed options required for a complete and operational system.

The contractor shall furnish, deliver, rig, set, install, connect, start, test, balance, and commission the HVAC unit.

B. General Equipment Information

HVAC stands for Heating, Ventilation, and Air Conditioning. HVAC equipment is used to control indoor temperature, humidity, air quality, and air circulation in residential, commercial, and industrial buildings.

Main Categories of HVAC Equipment

1. Heating Equipment

Used to raise indoor temperatures during cold weather.
Common Types:

- Furnaces (gas, electric, or oil-fired)
    - Heat air and distribute it through ductwork.
- Boilers
    - Heat water or produce steam for radiators and hydronic systems.
- Heat Pumps
    - Transfer heat from outside to inside during winter.
    - Can also provide cooling in summer.
- Unit Heaters
    - Often used in warehouses, garages, and industrial spaces.

2. Cooling Equipment

Used to remove heat and maintain comfortable temperatures.
Common Types:

- Air Conditioners (Split Systems)
    - Consist of an outdoor condenser and indoor evaporator coil.
- Packaged Rooftop Units (RTUs)
    - Self-contained units commonly installed on commercial buildings.
- Chillers
    - Produce chilled water for large commercial and industrial facilities.
- Variable Refrigerant Flow (VRF/VRV) Systems
    - Highly efficient systems that serve multiple zones independently.

3. Ventilation Equipment

Provides fresh air and removes contaminants from indoor spaces.

Common Types:

- Air Handling Units (AHUs)
    - Condition and distribute air throughout a building.
- Make-Up Air Units (MAUs)
    - Replace exhausted air with fresh outdoor air.
- Exhaust Fans
    - Remove stale air, fumes, heat, or moisture.
- Energy Recovery Ventilators (ERVs) and Heat Recovery Ventilators (HRVs)
    - Improve ventilation efficiency by recovering energy from exhaust air.

4. Air Distribution Equipment

Moves conditioned air throughout the building.

Examples:

- Ductwork
- Diffusers
- Registers
- Grilles
- Dampers
- Variable Air Volume (VAV) boxes

5. Indoor Air Quality (IAQ) Equipment

Improves air cleanliness and occupant comfort.

Examples:

- Air filters (MERV-rated)
- HEPA filtration systems
- UV germicidal lights
- Humidifiers
- Dehumidifiers
- Air purifiers

C. Performance Requirements

HVAC equipment shall be factory assembled, AHRI certified, and UL listed. Equipment shall meet or exceed the minimum efficiency requirements of ASHRAE 90.1 and applicable federal energy standards. Cooling equipment shall provide not less than 11.0 EER and 12.0 IEER. Heat pumps shall provide a minimum COP of 3.3 at rated conditions. Equipment shall maintain indoor temperature within ±2°F of the setpoint and operate continuously under local outdoor design conditions.

D. Filtration Requirements

Filter sections shall be designed to minimize pressure drop and permit filter replacement without removing major equipment components.

HVAC units use several different types of air filters, each designed for specific applications, filtration efficiency, and airflow requirements.

1. Fiberglass Filters
    - Made from spun fiberglass fibers.
    - Lowest-cost option.
    - Typically disposable.
    - Capture large particles such as dust, lint, and debris.
    - MERV Rating: 1-4.
    - Primarily protect HVAC equipment rather than improve indoor air quality.
2. Pleated Filters
    - Made from folded polyester or cotton material.
    - Greater surface area than fiberglass filters.
    - Better dust, pollen, pet dander, and mold spore removal.
    - MERV Rating: 5-13.
    - Most common filter used in residential and commercial HVAC systems.
3. Washable/Reusable Filters
    - Constructed from aluminum mesh, foam, or synthetic media.
    - Can be cleaned and reused.
    - Lower ongoing replacement cost.
    - Efficiency varies by manufacturer.
    - Require regular maintenance to remain effective.
4. High-Efficiency Particulate Air (HEPA) Filters
    - Remove at least 99.97% of particles 0.3 microns in size.
    - Capture bacteria, smoke particles, pollen, and fine dust.
    - Often used in:
        - Hospitals
        - Laboratories
        - Clean rooms
        - Specialized commercial HVAC systems
    - May require system modifications because of higher airflow resistance.
5. Electrostatic Filters
    - Use static electricity to attract airborne particles.

- Available as disposable or washable types.
- Effective for capturing:
    - Dust
    - Pet dander
    - Pollen
- Moderate airflow resistance.

6. Electronic Air Cleaners (EAC)
    - Active filtration system using electrically charged plates.
    - Traps very fine particles.
    - Common in commercial buildings and high-performance residential systems.
    - Requires routine cleaning of collector plates.
7. Activated Carbon Filters
    - Contain carbon media that adsorbs gases and odors.
    - Effective for:
        - Smoke
        - VOCs (Volatile Organic Compounds)
        - Cooking odors
        - Chemical fumes
    - Usually combined with another particulate filter.
8. Bag Filters (Pocket Filters)
    - Deep-pocket design increases dust-holding capacity.
    - Common in commercial and industrial air-handling units (AHUs).
    - MERV Rating: 11-16.
    - Longer service life than standard pleated filters.
9. Panel Filters
    - Flat, disposable filters.
    - Often used as pre-filters in commercial HVAC systems.
    - Capture larger airborne particles before air reaches higher-efficiency filters.
10. ULPA Filters (Ultra-Low Penetration Air Filters)
    - Higher efficiency than HEPA filters.
    - Remove up to 99.999% of very small particles.
    - Used in:
        - Semiconductor manufacturing
        - Pharmaceutical facilities
        - Critical cleanroom environments

Common HVAC Filter Efficiency Ratings

HVAC filter efficiency is most commonly rated using the **MERV (Minimum Efficiency Reporting Value)** scale developed by ASHRAE. Higher MERV ratings capture smaller airborne particles more effectively. [ingener.by]

MERV Rating	Typical Efficiency	Particles Captured	Common Applications
MERV 1-4	Basic filtration	Dust mites, carpet fibers, pollen	Residential pre-filters
MERV 5-8	Moderate filtration	Mold spores, dust, pet dander	Standard residential and light commercial
MERV 9-12	High filtration	Fine dust, lead dust, auto emissions	Commercial offices, schools
MERV 13-16	Very high filtration	Bacteria, smoke, sneeze droplets	Healthcare facilities, laboratories
MERV 17-20 (HEPA equivalent range)	Near-HEPA performance	Very fine particles and some pathogens	Clean rooms, hospitals, pharmaceutical f

Typical Recommendations

- Residential HVAC: MERV 8-11 pleated filter.
- Homes with pets/allergies: MERV 11-13 pleated filter.
- Commercial office buildings: MERV 13 or higher where system design permits.
- Healthcare facilities: HEPA filtration in critical areas.

The most commonly used HVAC filters are fiberglass, pleated, electrostatic, activated carbon, bag filters, and HEPA filters, with pleated MERV 8-13 filters being the industry standard for balancing filtration efficiency and airflow.

E. Fan Section

The supply fan shall be factory installed and selected to deliver the scheduled airflow at the specified external static pressure.

Provide:

- Direct- or belt-drive fan as scheduled.
- Motor sized for the required operating point.
- Variable-speed control or VFD where specified.
- Fan isolation where required.
- Factory-installed motor protection.
- Fan speed adjustment.

F. CONSTRUCTION REQUIREMENTS

The unit shall be factory assembled with a weather-resistant cabinet suitable for the installation environment.

Provide:

- Corrosion-resistant cabinet construction.
- Factory-installed insulation.
- Removable service/access panels.
- Weather-resistant exterior finish.
- Clearly identified service access points.
- Factory-installed lifting provisions where applicable.
- Structural base suitable for the specified installation.
- All necessary internal wiring and piping.

Unit construction shall be suitable for rooftop, outdoor, indoor, or other specified installation conditions.

Insulation

- Minimum 1-inch fiberglass or closed-cell insulation.
- Meets applicable UL requirements.

Condensate Management

- Stainless steel or corrosion-resistant drain pan.
- Positive drain design.

G. COMPRESSOR REQUIREMENTS

- Scroll compressor(s).
- Factory-mounted vibration isolation.
- Crankcase heater.
- High and low refrigerant pressure protection.
- Anti-short cycle protection.

H. Dehumidification Section

Provide factory-assembled dehumidification equipment complete with controls, accessories, and appurtenances necessary for a complete and operational system. Work includes:

- Refrigeration-based dehumidifiers

- Desiccant dehumidifiers (where indicated)
- Integrated cooling/reheat systems
- Condensate collection and drainage
- Control interfaces
- Startup and commissioning

I. Electrical Requirements

- Factory-wired controls.
- Single-point power connection.
- Lockable disconnect.
- Phase and voltage protection.
- Surge protection device installed.

J. CONTROLS

Building Automation System (BAS)

- BACnet compatible.
- Native BACnet IP preferred.
- Integration with existing BAS system.

Unit Controls

- Programmable controller.
- Occupied/unoccupied scheduling.
- Supply air temperature monitoring.
- Alarm notification capability.
- Remote monitoring capability.
-

The HVAC unit shall include a complete factory-installed control system.

Controls shall provide, as applicable:

- Start/stop control.
- Cooling staging.
- Heating staging.
- Supply fan control.
- Temperature control.
- Economizer control.
- Outdoor-air control.

- Compressor protection.
- Fan failure indication.
- High/low refrigerant pressure protection.
- Freeze protection.
- Smoke shutdown.
- Alarm indication.
- Fault diagnostics.

Where connected to a building automation system, provide the required BACnet, Modbus, or other specified communication interface.

K. Energy Efficiency Requirements

When evaluating HVAC equipment, common performance ratings include:

- **SEER2**: Seasonal Energy Efficiency Ratio
- **EER**: Energy Efficiency Ratio
- **HSPF2**: Heating Seasonal Performance Factor
- **COP**: Coefficient of Performance
- **AFUE**: Annual Fuel Utilization Efficiency (furnaces)
- **IEER**: Integrated Energy Efficiency Ratio (commercial equipment)

L. INSTALLATION REQUIREMENTS

Vendor shall provide:

- Equipment delivery.
- Rigging and placement.
- Removal and disposal of existing unit.
- Startup and commissioning.
- TAB coordination (Testing, Adjusting, and Balancing).
- Operator training.
- O&M manuals.
- Warranty documentation.

M. SAFETY FEATURES

- Smoke detector (where required).
- Freeze protection.
- Dirty filter indication.
- High static pressure protection.
- Compressor overload protection.

N. ROOF CURB / SUPPORT

Where applicable, provide a factory-engineered roof curb compatible with the HVAC unit.

Provide:

- Structural support.
- Factory curb gasket.
- Insulated curb where specified.
- Curb adapter where required.
- Weatherproof flashing.
- Sealing between curb and unit.

The contractor shall coordinate curb dimensions and roof openings with the structural and architectural drawings.

O. EXECUTION REQUIREMENTS

- The HVAC installation shall be complete in every respect. Work shall include all equipment, accessories, controls, piping, duct connections, electrical connections, supports, insulation, startup, testing, balancing, commissioning, and incidental materials necessary for a complete operating system.

P. WARRANTY

The HVAC equipment shall be warranted against defects in materials and workmanship for a period of one (1) year from the date of installation or startup. Manufacturer's standard warranty shall apply to all major components, including compressors, coils, and controls. Warranty coverage excludes damage caused by improper installation, misuse, lack of maintenance, power fluctuations, acts of nature, or unauthorized repairs.

Residential HVAC Units

- **Parts Warranty:** 5 years standard, often extended to **10 years** if the unit is registered within the manufacturer's required timeframe.
- **Compressor Warranty:** Typically **10 years** (sometimes longer on premium models).
- **Heat Exchanger Warranty (Gas Furnaces):** Usually **20 years to Lifetime**, depending on the model.
- **Labor Warranty:** Generally **1 year** from the installing contractor unless an extended labor warranty was purchased.

Commercial HVAC Units

- **Parts Warranty:** Typically **1 year** from startup or shipment date.
- **Compressor Warranty:** Usually **5 years**.
- **Heat Exchanger Warranty:** Often **10 years** or more, depending on equipment type.
- Labor is generally **not included** unless specified in the contract.

Common Warranty Exclusions

- Lack of preventive maintenance
- Improper installation
- Refrigerant contamination
- Electrical surges or lightning damage
- Corrosion caused by environmental conditions
- Unauthorized modifications or repairs

Q. ACCEPTABLE MANUFACTURERS

Acceptable Manufacturers: HVAC equipment shall be manufactured by Trane, Carrier, York, Lennox, Daikin, AAON, Rheem, or approved equal. Equipment shall meet the specified performance requirements, capacities, efficiencies, dimensions, and applicable codes and standards. Requests for approved equal substitutions shall be submitted in accordance with contract requirements. Common Manufacturers are as follows for different units:

Packaged Rooftop Units (RTUs) / Split Systems

(Not all Manufacturers that could be considered for this bid solicitation)

- Trane – Precedent, Voyager, Intellipak, and commercial split systems.
- Carrier – WeatherMaker, WeatherExpert, and commercial split-system product lines.
- Daikin – Rebel, Maverick, and split-system equipment.
- Johnson Controls (York) – Sunline, Predator, and split systems.
- Lennox – Energence, Landmark, and commercial rooftop units.
- AAON – High-efficiency custom and semi-custom rooftop systems.
- Rheem / Ruud – Commercial packageg and rooftop and split systems.
- Nortek Global HVAC (Mammoth, Reznor, Frigidaire commerical).
- Mitsubishi Electric – Commercial split systems and VRF applications.
- LG Air Conditioning Technologies – Commercial split systems and VRF equipment.

Chillers

- Trane
- York (Johnson Controls)
- Carrier
- Multistack
- Daikin
- **Smardt**

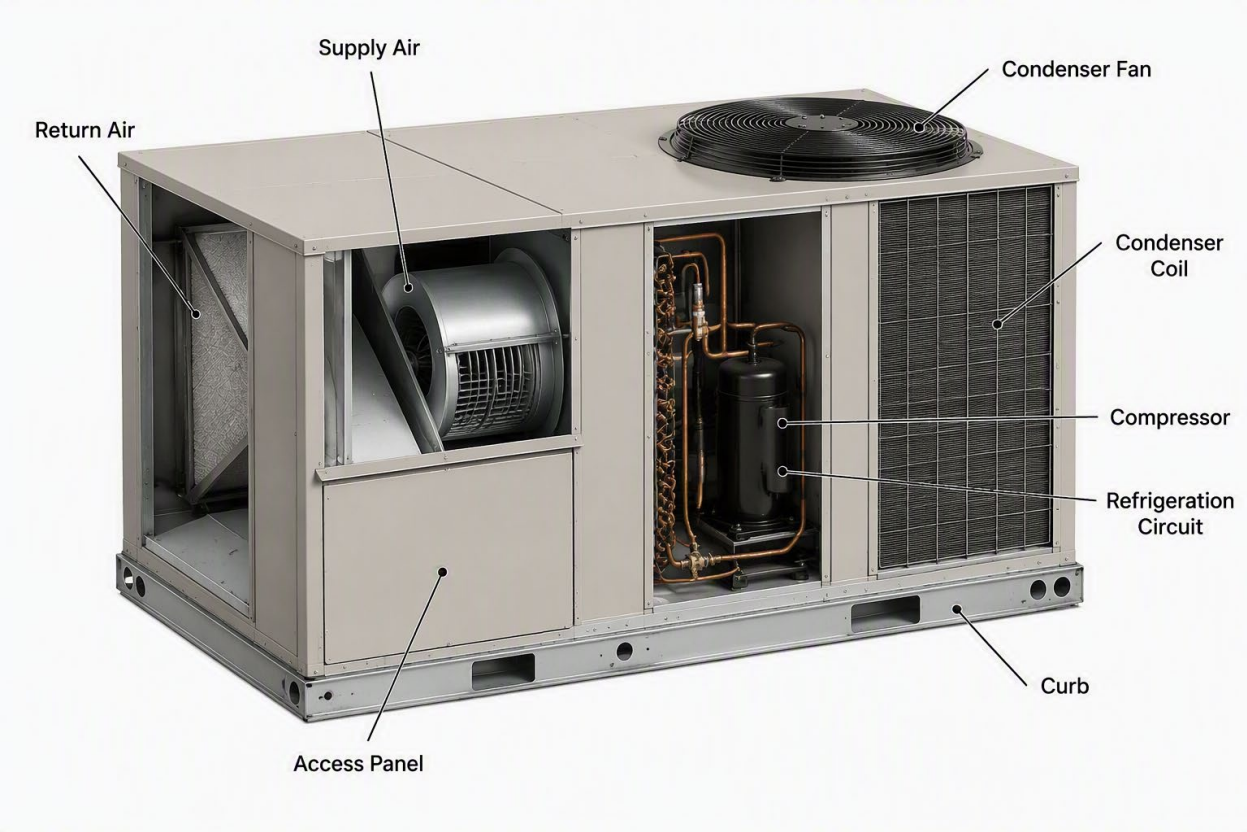
Air Handling Units (AHUs)

- Trane
- Carrier
- Daikin
  Temtrol
- Climate Craft
- AAON
- **Climate Craft**
- **Greenhack**

Variable Refrigerant Flow (VRF) Systems

- Mitsubishi Electric
- Daikin
- LG
- Samsung
- Fujitsu
- Carrier Toshiba

HVAC Unit Example



27-270 DUST COLLECTOR SYSTEM SPECIFICATION SHEET

A. General Information on Dust Collector

Provide all labor, materials, equipment, supervision, testing, and commissioning necessary for the installation, replacement, inspection, maintenance, or repair of the dust collector system to ensure safe and efficient operation in accordance with applicable codes and manufacturer recommendations.

A dust collector is an air pollution control device designed to capture, filter, and remove dust, particulate matter, and airborne contaminants generated during industrial processes. Dust collectors improve air quality, protect workers, reduce housekeeping requirements, and help facilities comply with environmental and safety regulations.

Common Applications

- Woodworking and carpentry shops
- Metal fabrication and welding operations
- Manufacturing plants
- Grain handling facilities
- Mining and cement operations
- Pharmaceutical processing
- Food processing facilities

B. Main Components of a Dust Collector System

1. Collector Housing

The main enclosure that contains the filtration system and directs airflow through the unit.

2. Filters

Capture airborne particles before clean air is returned to the environment.

Common filter types include:

- Cartridge filters
- Filter bags (baghouse)
- Pleated filters
- HEPA filters (specialized applications)

3. Fan/Blower Assembly

Creates airflow and suction to transport dust from collection points through the ductwork to the collector.

4. Dust Hopper

Collects dust separated from the airstream and directs it to a disposal container.

5. Rotary Airlock Valve

Allows continuous discharge of collected dust while maintaining system pressure.

6. Ductwork System

Transports contaminated air from equipment and workstations to the dust collector.

7. Pulse-Jet Cleaning System

Uses compressed air to periodically clean filters and maintain airflow performance.

8. Control Panel

Provides operational control, monitoring, alarms, and system protection.

9. Differential Pressure Gauge

Monitors pressure across filters to indicate filter condition and replacement requirements.

C. Common Types of Dust Collectors

Cartridge Dust Collectors

- High filtration efficiency
- Compact design
- Suitable for fine dust collection
- Common in manufacturing facilities

Baghouse Dust Collectors

- Uses fabric filter bags
- Handles high dust volumes
- Common in heavy industrial applications

Cyclone Dust Collectors

- Uses centrifugal force to separate larger particles
- Often used as a pre-filter ahead of another collector

Wet Scrubbers

- Use water to capture dust particles
- Suitable for explosive, sticky, or combustible dust

Portable Dust Collectors

- Mobile units for localized collection
- Used in maintenance shops and small operations

D. Performance Requirements

Parameter	**Typical Range**
Airflow Capacity	500 - 100,000+ CFM
Filtration Efficiency	Up to 99.9%
Operating Static Pressure	2 - 20 in. w.g.
Filter Life	1 - 5 years (application dependent)
Dust Collection Capacity	Varies by hopper size
Parameter	**Typical Range**

E. Dust Collector Filtration Requirements

Dust collector filtration requirements depend on the dust type, particle size, health hazards, air quality goals, and whether the dust is combustible. Proper filtration is essential for worker safety, regulatory compliance, and equipment protection. [epa.gov], [osha.gov]

1. Filtration Efficiency

Industrial dust collectors typically use fabric filter bags or cartridge filters capable of removing more than 99% of particulate matter when properly selected and maintained. [epa.gov]

Typical filtration targets:

- Coarse dust (>10 microns): Standard polyester or cellulose filters

- Fine dust (1-10 microns): High-efficiency cartridge filters
    - Hazardous dust (silica, pharmaceutical, metal dust): HEPA or equivalent secondary filtration may be required depending on the application.

2. Filter Media Selection

Filter media should be selected based on:

- Dust characteristics
- Operating temperature
- Moisture/humidity
- Chemical resistance requirements
- Abrasion resistance
- Combustibility of the dust

Common media include:

- Polyester
- Cellulose blend
- PTFE membrane
- Fiberglass
- Aramid (Nomex®)
- High-temperature specialty fabrics

3. Air-to-Cloth Ratio (Filtration Velocity)

The filtration velocity (air-to-cloth ratio) is a critical design parameter.
Typical industrial baghouse values:

- 1.5 to 4.5 ft/min depending on dust loading and application.
- Lower ratios are generally used for:
- Fine dust
- Abrasive dust
- Sticky dust
- High-efficiency applications

4. Pressure Drop Requirements

Filters should operate within an acceptable differential pressure range to maintain airflow and system efficiency

.

Typical operating range:

- 2-6 in. w.g. for clean systems
- Replace or clean filters when pressure drop becomes excessive, often approaching 10-15 in. w.g. depending on manufacturer recommendations.

5. OSHA and Health Requirements

The dust collection system must maintain employee exposure below applicable OSHA limits.
For example:

- Respirable crystalline silica PEL: 50 µg/m³ (8-hour TWA).
- Facilities generating silica, metal, pharmaceutical, or toxic dust often require high-efficiency filtration and exposure monitoring.

6. Combustible Dust Requirements

For combustible dusts (wood, grain, metal powders, chemicals):

- Conduct a Dust Hazard Analysis (DHA)
- Follow NFPA combustible dust standards
- Use spark-resistant system components where required
- Provide explosion venting, suppression, or isolation if applicable
- Ensure dust collectors are designed specifically for combustible dust service

F. Preventive Maintenance Requirements

Daily/Weekly

- Inspect hopper dust levels.
- Verify fan operation.
- Check differential pressure readings.
- Inspect for air leaks.

Monthly

- Inspect filters and sealing gaskets.
- Check compressed air system.
- Inspect belts and pulleys.
- Verify control panel operation.

Annually

- Replace worn filters as necessary.
- Inspect collector housing and structural components.
- Perform motor and bearing maintenance.
- Calibrate instruments and sensors.

G. Safety Features

- Explosion relief panels
- Spark arrestors
- Fire suppression systems
- High differential pressure alarms
- Emergency shutdown controls
- Grounding and bonding systems for combustible dust applications

- RoboVent
- Airex Industries

J. Fan Section

1. Fan Types in Dust Collectors

- Centrifugal (radial) fan (most common for dust collection)
- Backward-curved, radial-blade, or airfoil impeller designs

2. Airflow Capacity

- Measured in CFM (Cubic Feet per Minute) or m^3/hr
- Typical ranges:
  - Small workshop: 500-2,000 CFM
  - Industrial systems: 5,000-50,000+ CFM

3. Static Pressure

- Measured in inches of water gauge (in. WG) or Pa
- Indicates the fan's ability to overcome duct and filter resistance
- Common range: 6-20 in. WG for industrial dust collectors

4. Motor Details

- Horsepower (HP) or kW rating
- Common sizes:
    - 1-5 HP for small systems
    - 10-100+ HP for industrial systems
- Voltage:
    - 230V, 460V, or 575V (3-phase common in industrial applications)

5. Fan Speed

- Measured in RPM
- Typically between 1,000-3,600 RPM depending on design

6. Impeller Specifications

- Diameter (e.g., 12", 18", 24", 36")
- Material:
    - Mild steel
    - Stainless steel
    - Abrasion-resistant steel for heavy dust applications

K. Electrical Requirements

- Verify power supply requirements.
- Inspect and test:
    - Motor starters
    - VFDs (Variable Frequency Drives)
    - Differential pressure gauges
    - Control panels
    - Safety interlocks
- Replace defective electrical components as required.

L. Controls

1. Control Panel

- NEMA-rated enclosure.
- HOA (Hand-Off-Auto) selector switch.
- System status indicators.
- Filter differential pressure display.
- Alarm indicators.
- Emergency stop.

2. Monitoring Functions

- Fan run status.
- Filter pressure drop.
- Motor overload condition.
- High hopper level.
- Maintenance alerts

M. Construction Requirements

1. Site Assessment
- Perform field verification of existing dust collector equipment and associated ductwork.
- Verify dimensions, utility connections, and equipment access.
- Identify any deficiencies or safety concerns.

2. Equipment Supply (If Applicable)
- Furnish dust collector unit(s) as specified.
- Provide:
    - Filter cartridges or filter bags
    - Fan and motor assembly
    - Hopper and discharge system
    - Rotary airlock (if required)
    - Control panel
    - Safety devices and monitoring instruments

3. Removal of Existing Equipment (If Applicable)
- Disconnect and remove existing dust collector components.
- Dispose of removed materials in accordance with environmental regulations.
- Protect adjacent equipment and facilities during demolition activities.

4. Installation
- Install dust collector unit and supporting structure.
- Install and connect:
    - Ductwork
    - Fan assemblies
    - Hoppers
    - Electrical power and controls
    - Compressed air piping for pulse-jet systems
- Ensure proper equipment alignment and anchoring.

5. Filter System Maintenance/Replacement
- Remove and replace filter bags or cartridges.
- Inspect cages, venturis, and sealing gaskets.
- Clean filter housing and replace damaged components as necessary.

6. Mechanical Inspection
- Inspect:
    - Fan bearings
    - Belts and pulleys
    - Motors
    - Rotary valves

    - Hopper discharge systems
    - Access doors and seals
- Lubricate components as recommended by the manufacturer.

7. Electrical and Controls
8. Cleaning and Housekeeping

- Remove accumulated dust and debris from:
    - Collector housing
    - Hopper
    - Ductwork connections
    - Work area
- Maintain compliance with site safety and environmental requirements.

9. Testing and Commissioning

- Conduct operational testing of the dust collector system.
- Verify:
    - Airflow performance
    - Fan rotation
    - Pulse cleaning operation
    - Differential pressure readings
    - Leak-free operation
- Correct deficiencies discovered during testing.

10. Documentation

- Provide maintenance and inspection reports.
- Submit startup and commissioning records.
- Deliver manufacturer manuals, warranties, and recommended maintenance schedules.

11. Housing

- Heavy-gauge welded steel construction.
- Powder-coated or industrial-grade finish.
- Corrosion-resistant hardware.
- Structural reinforcement for outdoor installations.

12. Hopper

- Integrated dust hopper.
- Continuous discharge capability.
- Easy-access cleanout doors.

13. Access Doors

- Gasketed inspection doors.
- Tool-free access where available.

O. Warranty Requirements

Component	Minimum Warranty
Dust Collector Housing	5 Years
Fan Assembly	2 Years

Motor	1 Year
Controls	1 Year
Filters	Manufacturer Standard
Installation Labor	1 Year

P. ACCEPTABLE MANUFACTURERS

The following manufacturers are considered acceptable subject to compliance with all specifications by not limited to this solicitation :

- Donaldson Torit
- Nederman
- A.C.T. Dust Collectors
- Environmental Solutions
- Farr Gold Series (Camfil)
- Sly Inc.
- Camfil APC
- Imperial Systems, Inc.
- U.S. Air Filtration
- Dust Hog (CECO Environmental)
- Keller USA
- AAF International

Dust Collector System Example –



27-270 DEHUMIDIFICATION UNIT SPECIFICATION SHEET

A. GENERAL REQUIREMENTS

The Contractor shall furnish, deliver, install, start up, and commission a complete commercial-grade dehumidification unit designed to maintain specified indoor temperature and humidity conditions.

The dehumidification system shall be suitable for continuous operation in:

- Natatoriums (Swimming Pools)
- Schools and Universities
- Gymnasiums
- Archives and Libraries
- Data Centers
- Warehouses
- Industrial Facilities
- Municipal Buildings
- Healthcare Facilities

B. Performance Requirements

Typical Performance Parameters

Parameter	Typical Range
Airflow Capacity	200–50,000+ CFM
Relative Humidity Control	10%–60% RH
Moisture Removal Rate	10–2,000+ lbs/day
Operating Temperature	40°F–120°F
Electrical Supply	120V–480V

- Maintain design space humidity levels.
- Operate efficiently across expected load conditions.
- Minimize reheat energy consumption.
- Provide performance data including:
    - Moisture removal capacity
    - Energy consumption
    - Airflow capacity
    - Operating COP or IEF

C. Filtration Requirements

For Dehumidification Units (DHUs), filtration requirements depend on the application (commercial building, industrial process, cleanroom, hospital, etc.). Typical industry practice is:

Standard Commercial Dehumidification Units

- Pre-filter: Minimum MERV 8 disposable or washable filter.
- Final filter: MERV 13 recommended where improved indoor air quality is required. MERV 13 captures a significant percentage of fine particles and is commonly specified for commercial HVAC systems. [usmadesupply.com], [engineersu...iverse.com]

Healthcare and Critical Environments

- Pre-filter: MERV 8 to MERV 11.
- Final filter: MERV 14 to MERV 16, or HEPA filtration where required by project specifications and applicable healthcare standards. [csemag.com], [ashrae.org]

Industrial / Process Dehumidification

- Filtration is selected based on contamination sensitivity:
    - MERV 8 for general dust protection.
    - MERV 13 or higher for electronics, pharmaceuticals, food processing, or other clean applications.
    - HEPA filters where ultra-clean air is necessary.

Additional Design Considerations:

- Filters should be accessible for maintenance and replacement.
- Include differential pressure monitoring (pressure gauges or switches) across filters.
- Filter pressure drop must be included in fan static pressure calculations.
- Higher-efficiency filters increase air resistance and may require larger fans or higher motor capacity

D. Fan Section

Major Components

Air Intake Section

- Draws humid air into the unit.

Cooling Coil (Refrigerant Units)

- Condenses moisture from the air stream.

Desiccant Wheel (Desiccant Units)

- Absorbs moisture from incoming air.

Fan Assembly

- Moves air through the system.

Drain Pan and Drain Line

- Collects and removes condensate.

Compressor

- Circulates refrigerant in mechanical dehumidifiers.

Reheat Coil

- Raises air temperature after moisture removal when required.

Control System

- Monitors humidity and unit operation.

E. Electrical Requirements

The electrical requirements of a dehumidification unit vary based on unit capacity, type (refrigerant or desiccant), and installation location. The following are typical specification requirements for commercial and industrial applications.

1. Power Supply

- Unit shall operate on the electrical service indicated on the drawings.
- Common voltages:
    - 208/230V, 1 Phase, 60 Hz
    - 460V, 3 Phase, 60 Hz
    - 575V, 3 Phase, 60 Hz (industrial applications)
- Voltage variation shall not exceed ±10% of rated voltage.
- Frequency variation shall not exceed ±5%.

2. Electrical Components

- Factory-wired control panel.
- Main disconnect switch (lockable, door interlocked where applicable).
- Motor starters or Variable Frequency Drives (VFDs) for supply and exhaust fans.
- Terminal strip for field wiring connections.
- Control transformer for low-voltage controls.
- Overcurrent and short-circuit protection.

3. Motors

- Fan motors shall be:
    - Premium efficiency.
    - TEFC (Totally Enclosed Fan Cooled) or as specified.
    - Suitable for continuous-duty operation.
    - NEMA-compliant.

7. Controls

Controls and Instrumentation

- Unit-mounted microprocessor controller.
- Humidity sensor/transmitter.
- Space and/or duct-mounted temperature sensors.
- Digital display for:
    - Relative humidity (%RH)
    - Temperature
    - Alarms and fault conditions.
- BACnet, Modbus, or LonWorks compatibility for Building Management System (BMS) integration.

F. Safety Devices

- Motor overload protection.
- High-pressure and low-pressure refrigerant safety switches.
- Phase loss and phase reversal protection (3-phase units).
- Control circuit fuse protection.
- Emergency shutdown input.
- Smoke detector interlock where required by code.

G. EQUIPMENT INFORMATION

A dehumidification system is designed to remove excess moisture from the air to maintain desired humidity levels, prevent mold growth, protect equipment and materials, improve occupant comfort, and support industrial processes.

Dehumidifiers are commonly used in commercial buildings, industrial facilities, warehouses, data centers, laboratories, healthcare facilities, and HVAC systems.

Types of Dehumidification Equipment

1. Refrigerant (Mechanical) Dehumidifiers

The most common type of dehumidifier.

Operating Principle

- Moist air passes over a cold evaporator coil.
- Moisture condenses into water droplets.
- Water is collected and drained.
- Air is reheated and returned to the space.

Applications

- Offices
- Schools
- Warehouses
- Residential buildings
- Commercial HVAC systems

Advantages

- Energy efficient in moderate temperatures.
- Lower initial cost.
- Widely available.

2. Desiccant Dehumidifiers

Operating Principle

- Moisture is absorbed by a desiccant material such as silica gel or lithium chloride.
- A regeneration process removes collected moisture from the desiccant media.

Applications

- Pharmaceutical facilities
- Food processing
- Cold storage areas
- Laboratories
- Manufacturing facilities

Advantages

- Effective at low temperatures.
- Achieves very low humidity levels.
- Suitable for critical environments.

3. HVAC Integrated Dehumidification Systems

Operating Principle

Integrated within air handling units (AHUs) or rooftop units (RTUs) to control both temperature and humidity.

Applications

- Commercial buildings
- Hospitals
- Schools
- Airports

Advantages

- Centralized humidity control.
- Improved indoor air quality.
- Reduced mold and condensation issues.

H. ENERGY EFFICIENCY REQUIREMENTS

Energy efficiency requirements for dehumidification systems depend on the equipment type, application, and applicable codes or standards. The goal is to remove moisture while minimizing energy consumption.

Common Efficiency Metrics

1. Integrated Energy Factor (IEF)

The primary efficiency rating for many commercial and residential dehumidifiers.

2. Energy Factor (EF)

An older measurement still referenced for some equipment.

3. Coefficient of Performance (COP)
Used for industrial and desiccant dehumidification systems.
Energy-Efficient Design Requirements
High-Efficiency Fans and Motors

- Premium efficiency motors (IE3, IE4, or NEMA Premium)
- Variable Frequency Drives (VFDs)
- Direct-drive fan systems where practical

Variable Capacity Controls

- Modulating compressors
- Variable-speed fans
- Humidity-based control sequences
- Demand-controlled operation

Energy Recovery

- Enthalpy wheels
- Heat recovery coils
- Waste heat utilization
- Run-around coil systems

Advanced Controls

- Digital humidity sensors
- Programmable controls
- Building Automation System (BAS) integration
- Remote monitoring capability

Refrigerant Dehumidification Efficiency Requirements
Recommended Features

- Electronically Commutated Motors (ECM)
- High-efficiency compressors
- Microchannel condensers
- Insulated cabinet construction
- Automatic condensate removal

The unit shall automatically optimize operation to reduce energy consumption while maintaining humidity setpoints.

I. Construction Requirements

A. Housing

- Double-wall construction preferred.
- Galvanized steel cabinet.
- Powder-coated exterior finish.
- Corrosion-resistant hardware.
- Thermal insulation throughout cabinet.

B. Fan Section

The fan section of a dehumidification system is responsible for moving air through the dehumidifier, ensuring proper airflow across filters, coils, and moisture removal components.

Fan performance directly impacts humidity control, energy efficiency, and overall system effectiveness.

Functions of the Fan Section

- Draws moist air into the dehumidification unit.
- Moves air through filters and cooling/desiccant components.
- Maintains required airflow (CFM).
- Delivers conditioned, dry air to the occupied space or duct system.
- Maintains proper static pressure within the system.

C. Typical Components

1. Supply Fan
   - Delivers dehumidified air to the building or process area.
   - Typically the primary fan in most systems.
   - Can be centrifugal or plenum type.
2. Return Fan (When Applicable)
   - Returns air from the conditioned space back to the dehumidification unit.
   - Helps maintain building pressure balance.
3. Fan Motor
   - Powers the fan assembly.
   - Commonly:
     - NEMA Premium efficiency motors
     - TEFC (Totally Enclosed Fan Cooled) motors
     - ECM motors for smaller units
4. Variable Frequency Drive (VFD)
   - Controls fan speed based on demand.
   - Improves energy efficiency.
   - Reduces operating costs and equipment wear.
5. Fan Housing
   - Contains the fan wheel and directs airflow.
   - Constructed of galvanized steel, aluminum, or stainless steel.
6. Vibration Isolation
   - Spring isolators
   - Rubber mounts

Flexible duct connectors

J. WARRANTY REQUIREMENTS

Component	Minimum Warranty
Compressors	5 Years
Parts	1 Year
Controls	1 Year
Heat Exchanger Components	5 Years
Labor	1 Year Preferred

K. ACCEPTABLE MANUFACTURERS

These are not limited to what could be included on the solicitation participating in the contract category or solicitation.

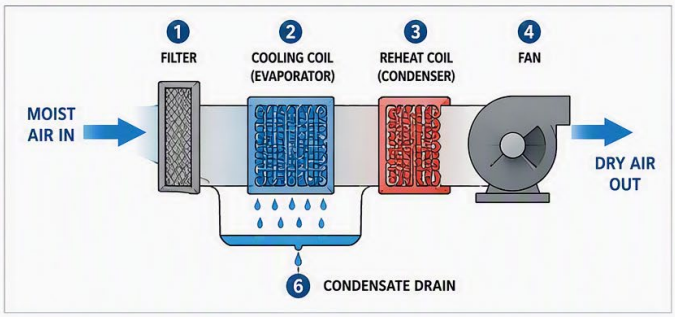
- Bry-Air
- Condair (formerly Nortec)
- Desert Aire
- Aprilaire
- Dehumidified Air Solutions (DAS)
- Munters
- Quest Climate
- Dri-Eaz
- Santa Fe Products (Therma-Stor)
- Seibu Giken DST

Typical applications where this would be used:

- Natatoriums (Indoor pools)
- Schools
- Hospitals
- Museums
- Cold Storage Facilities
- Industrial Warehouses
- Offices
- Commercial Buildings

Dehumidification Picture –





1	AIR FILTER	Removes dust and airborne particles.
2	COOLING COIL	Cools air below dew point; moisture condenses.
3	REHEAT COIL	Reheats air to desired supply temperature.
4	FAN	Moves air through the system.
5	SUPPLY FAN	Delivers dry air to the space or duct system.
6	DRAIN SYSTEM	Removes collected condensate (water).

27-270 Boiler Specification Sheet (Gas Fired or Electric)

A. General Information on Boilers

Provide factory-assembled, tested, and certified boiler equipment complete with controls, safety devices, accessories, and all components necessary for a fully operational heating system.

Gas-Fired Boiler

- High-efficiency condensing or non-condensing hot water boiler as indicated.
- Fuel: Natural gas unless otherwise noted.
- Minimum thermal efficiency:
  - Condensing boilers: 95% AFUE or greater.
  - Non-condensing boilers: 80% thermal efficiency or greater.
- Modulating burner with minimum 5:1 turndown ratio.

Electric Boiler

- Electric resistance hot water boiler.
- Factory-packaged with immersion heating elements.
- Efficiency: Approximately 99% at point of use.
- Staged or SCR-controlled heating elements for accurate temperature control.

B. Performance Requirements

1. Capacity

- Boiler shall provide the scheduled heating output shown on the drawings or equipment schedule.
- Capacity shall be based on site elevation, design ambient conditions, and specified fuel type.

2. Efficiency

- Minimum thermal efficiency:
  - Condensing boilers: 95% AFUE or higher (or minimum 94% thermal efficiency).
  - Non-condensing boilers: 85% thermal efficiency or higher.
- Efficiency shall be certified by a recognized third-party testing agency.

3. Turndown Ratio

- Minimum modulation turndown ratio of 5:1.
- Preferred turndown ratio of 10:1 or greater for improved part-load performance.

4. Operating Conditions

- Boiler shall operate continuously under all specified load conditions without overheating, excessive cycling, vibration, or flame instability.
- Boiler shall maintain stable combustion throughout the full firing range.

5. Combustion Performance

- Maximum NOx emissions: Less than 20 ppm corrected to 3% O_2 (or as required by local regulations).
- CO emissions shall comply with applicable environmental regulations.

6. Fuel Requirements

- Boiler shall be suitable for:

- Natural Gas (primary fuel).
- Propane/LPG (where specified).
- Dual-fuel operation if indicated.

7. Temperature and Pressure Ratings

- Design pressure and temperature ratings shall meet ASME requirements and project conditions.
- Heating hot-water boilers shall be rated for a minimum working pressure of 160 psig unless otherwise specified.

8. Controls Performance

- Boiler controls shall automatically modulate firing rate to maintain supply water temperature setpoint.
- Controls shall support BACnet or Modbus integration with the Building Automation System (BAS).

9. Electrical Requirements

- Electrical consumption shall be minimized through variable-speed combustion air fans and pumps where applicable.
- Equipment shall comply with applicable NEMA and NEC requirements.

10. Reliability

- Boiler shall be capable of operating 24 hours per day during the heating season.
- Manufacturer shall have a minimum of five years of experience producing boilers of similar size and type.

11. Sound Levels

- Maximum sound pressure level shall not exceed 85 dBA at 3 ft (1 m) from the boiler during normal operation.

12. Codes and Standards

- Boiler shall be listed and labeled by UL, ETL, or equivalent.
- Shall comply with:
  - ASME Boiler and Pressure Vessel Code
  - NFPA 54 (Fuel Gas Code)
  - NFPA 70 (National Electrical Code)
  - Local jurisdictional requirements

C . Filtration Requirements for Boilers

Unlike air handling units or dehumidification units, boilers do not typically require air filtration systems unless they are combustion-air intake applications or specialized installations. For bid specifications, the following requirements are commonly used.

1. Gas-Fired Boilers

Combustion Air Intake Filtration

- Provide factory-installed or field-installed combustion air intake filter where outdoor air contains excessive dust, pollen, or airborne contaminants.
- Minimum filter efficiency:
  - MERV 8 washable or disposable filter for general commercial applications.

    - MERV 11 to MERV 13 in dusty environments or where improved equipment protection is desired.
- Filter shall be accessible for inspection and replacement.
- Filter rack shall prevent air bypass.

Purpose

- Protect burner assemblies and combustion controls from dirt accumulation.
- Reduce fouling of heat exchanger surfaces.
- Improve reliability and maintenance intervals.

2. Electric Boilers

Electric boilers do not require combustion air and generally have:

- No combustion-air filtration requirement.
- Ventilation openings shall be protected by:
    - Metal screens or louvers.
    - Manufacturer-provided ventilation filters if specified.
- Electrical enclosure cooling air filters may be provided on larger boiler control panels.

3. Boiler Room Ventilation

Where boiler rooms use dedicated outdoor air:

- Outdoor air louvers shall include:
    - Bird screens.
    - Insect screens.
    - Washable pre-filters where dust is excessive.
- Filters shall be removable for maintenance.

4. Water-Side Filtration Requirements

Hydronic systems commonly require water filtration rather than air filtration.

Recommended Accessories

- Y-strainers on boiler inlet piping.
- Dirt separators.
- Air separators.
- Magnetic dirt separators for closed-loop systems.
- Side-stream filtration systems for large hydronic systems.

D. Fan Section for Boilers

Note: Boilers themselves generally do not include a supply-air fan section like an AHU or dehumidification unit. However, fan requirements may apply to combustion air systems, boiler room ventilation systems, or forced-draft burner assemblies.

1. Combustion Air Fan (When Required)

Provide a combustion air fan where natural ventilation is insufficient to meet code-required combustion air requirements.

A. Requirements

- Centrifugal or mixed-flow type.
- AMCA-certified performance.
- Continuous-duty operation.
- Factory-balanced wheel and shaft assembly.

- Direct-drive or belt-drive as indicated.
- Weatherproof construction for outdoor installations.
- Vibration isolation mounts.

B. Motor Requirements

- Premium-efficiency motor.
- TEFC enclosure.
- NEMA design B.
- Suitable for VFD operation where specified.

C. Controls

- Automatic start upon boiler enable signal.
- Airflow proving switch.
- Interlocked with boiler operation.
- Boiler shall not fire without verified airflow.

2. Forced-Draft Burner Fan

For gas-fired boilers equipped with forced-draft burners:

- Burner manufacturer shall provide combustion fan integral to the burner assembly.
- Fan shall supply adequate combustion air across full firing range.
- Modulating operation coordinated with burner controls.
- Low-NOx burner configuration where required.

Safety Interlocks

- Air proving switch.
- Burner management system integration.
- Automatic shutdown upon fan failure.

3. Boiler Room Ventilation Fan

Where mechanical room ventilation is required:

Exhaust Fan

- Centrifugal roof-mounted or wall-mounted fan.
- Automatic operation based on space temperature.
- Corrosion-resistant construction.

Supply Fan (if Applicable)

- Dedicated outdoor air fan.
- Filtered intake air.
- Motorized intake damper.
- Interlocked with boiler plant operation.

E. Electrical Requirements for Boilers

The boiler manufacturer shall provide boiler-mounted electrical components and controls suitable for the electrical characteristics scheduled for the project. Electrical requirements should include the following:

Power Supply

- Boiler electrical equipment shall be rated for:
    - 120V, 1-phase, 60 Hz for small commercial applications, or

    - 208V, 230V, 460V, or 575V, 3-phase, 60 Hz as indicated on the equipment schedule.

- Equipment shall operate satisfactorily with voltage variations of ±10% and frequency variations of ±5%.

Electrical Components

- Factory-wired control panel.
- Burner management system.
- Ignition transformer and ignition controls.
- Combustion air fan motor.
- Variable Frequency Drive (VFD), where specified.
- Control transformers and relays.
- Safety interlocks and alarm devices.

Motors

- Motors shall be premium-efficiency, inverter-duty rated where VFDs are provided.
- Motors shall comply with NEMA MG 1 requirements.
- Motor starters shall be factory-mounted unless otherwise noted.

F. Controls and Intergration for Boilers

A. Boiler controls shall be microprocessor-based and capable of:

- Automatic lead-lag sequencing.
- Outdoor air reset control.
- Supply water temperature control.
- Remote monitoring and diagnostics.
- Alarm notification.

B. Controls shall communicate with the Building Automation System (BAS) via:

- BACnet/IP
- BACnet MS/TP
- Modbus RTU or TCP
- LonWorks (where required)

G. Energy Efficiency Requirements

General

Boilers shall be high-efficiency units designed to minimize energy consumption while providing the required heating capacity. Equipment shall comply with all applicable federal, state, and local energy codes.

Gas-Fired Boilers

- Condensing boilers shall have a minimum thermal efficiency of 95% at full load.
- Non-condensing boilers shall have a minimum thermal efficiency of 80%.
- Boilers shall utilize fully modulating burners with a minimum 5:1 turndown ratio; 10:1 turndown is preferred.
- Boiler controls shall automatically adjust firing rate to match building load.

- Combustion controls shall optimize fuel-air ratios throughout the operating range.
- Low-NOx burners shall be provided where required by local regulations.

Electric Boilers

- Electric boilers shall provide a minimum operating efficiency of 99% at point of use.
- Heating elements shall be staged or SCR-controlled to minimize demand fluctuations and improve temperature control.
- Units shall be equipped with automatic load management controls.

Boiler Controls

Provide microprocessor-based controls capable of:

- Outdoor air temperature reset.
- Supply water temperature reset.
- Lead/lag sequencing for multiple boilers.
- Demand-based capacity control.
- Efficiency optimization routines.
- Alarm and diagnostic reporting.
- BACnet integration with the Building Automation System (BAS).

Pumps and Auxiliary Equipment

- Circulating pumps shall be premium-efficiency motors.
- Variable Frequency Drives (VFDs) shall be provided where indicated.
- Pump operation shall be coordinated with boiler demand.
- Standby losses shall be minimized through automatic scheduling and setback operation.

Insulation

- Boiler jackets shall be fully insulated to minimize radiant heat loss.
- All exposed hot-water piping, valves, and fittings shall be insulated in accordance with project specifications and applicable energy codes.

H. Construction Requirements for Boilers

1.General Construction

- Boilers shall be factory-fabricated, factory-assembled, and factory-tested prior to shipment.
- Construction shall comply with all applicable national, state, and local codes.
- Boilers shall bear the appropriate certification labels and approvals.
- Equipment shall be designed for continuous-duty operation.
- Units shall be suitable for indoor installation unless otherwise specified.

2. Pressure Vessel Construction

- Boiler pressure vessels shall be constructed in accordance with ASME Boiler and Pressure Vessel Code, Section IV.
- Pressure vessel shall be ASME stamped.
- Minimum working pressure shall be 160 psig unless otherwise indicated.
- Pressure vessel materials shall be carbon steel, stainless steel, cast iron, or other manufacturer-approved materials suitable for the application.
- Welded joints shall be performed in accordance with ASME requirements.

3. Casing and Jacket
- Boiler shall be enclosed within a heavy-gauge steel jacket.
- Exterior surfaces shall be cleaned, primed, and finished with a manufacturer's standard baked enamel coating.
- Access panels shall be removable for inspection and maintenance.
- Jacket construction shall minimize heat loss and provide protection against accidental contact with hot surfaces.

4. Insulation
- Boiler shall be completely insulated with non-combustible insulation.
- Insulation thickness shall be sufficient to minimize jacket heat loss.
- Surface temperatures shall not exceed manufacturer's published limits during normal operation.

5. Heat Exchanger Construction

Gas-Fired Boilers
- Heat exchanger shall be stainless steel, cast aluminum, fire-tube, water-tube, or cast iron design as specified.
- Heat exchanger shall be resistant to corrosion caused by condensate.
- Condensing boilers shall include condensate collection and drainage provisions.

Electric Boilers
- Heating elements shall be low-watt-density immersion type.
- Elements shall be removable for inspection and replacement.
- Pressure vessel and heating elements shall be designed to prevent thermal stress and scaling.

6. Piping Connections

Provide factory-installed or factory-prepared connections for:
- Supply water
- Return water
- Pressure relief valve discharge
- Drain connection
- Condensate drain (condensing units)
- Air vent connection
- Expansion tank connection (where applicable)

Connections shall be clearly labeled and accessible.

7. Access and Serviceability
- Boiler design shall permit access to controls, burners, heating elements, heat exchangers, and safety devices without major disassembly.
- Service clearances shall comply with manufacturer recommendations.
- Inspection ports shall be provided where required.

8. Mounting and Support
- Units shall be supplied with structural base rails or integral support frame.
- Boiler shall be suitable for mounting on a concrete housekeeping pad.
- Base shall permit leveling during installation.
- Equipment shall be designed to withstand normal transportation and installation loads without deformation.

9. Corrosion Protection

- Internal wetted surfaces shall be suitable for closed-loop hydronic systems.
- Condensing boiler components exposed to condensate shall be corrosion resistant.
- Fasteners exposed to moisture shall be stainless steel or corrosion-resistant coated steel.

10. Factory Quality Control

- Boilers shall be pressure tested at the factory.
- Electrical and control components shall be factory checked for proper operation.
- Manufacturer shall provide test records upon request.
- Equipment shall be shipped fully assembled to the greatest extent practical.

11. Identification

Provide permanent nameplates indicating:

- Manufacturer
- Model number
- Serial number
- Input capacity
- Output capacity
- Fuel type (gas-fired units)
- Voltage and electrical characteristics
- Maximum working pressure

I. Boiler Submittal Requirements

- Furnish and install a factory-packaged boiler system of the capacity indicated on the drawings.
- Boiler shall be ASME-certified and fully assembled with controls, safety devices, and accessories.
- Unit shall be capable of BACnet integration with the Building Automation System (BAS).
- Gas-fired units shall provide a minimum efficiency of 95% for condensing applications.
- Electric boilers shall provide staged or SCR-controlled heat with minimum operating efficiency of 99%.
- All equipment shall be UL-listed and installed in accordance with applicable codes and manufacturer requirements.

J. Boiler Warranty Requirements

- Minimum one-year parts and labor warranty from date of substantial completion.
- Heat exchanger warranty minimum five years.

K. Suggested Manufacturers for Boilers

Not intended to be required for this solicitation but is recommendations.

Hot Water Boilers

- AERCO
- Cleaver-Brooks
- Fulton
- Raypak
- Bradford White / Laars
- Lochinvar
- Viessman
- NTI Boilers
- Weil-McLain
- RBI

Firetube Boilers

- Cleaver-Brooks
- Hurst Boiler
- Superior Boiler
- York Shipley
- York Shipley
- Johnston Boiler Company
- CBEX (Cleaver-Brooks)
- Victory Energy

Watertube Boilers

- Babcock & Wilcox
- Cleaver – Brooks
- Victory Energy
- Nebraska Boiler
- Rentech Boiler Systems
- Indeck Power Equipment

Steam Boilers

- Miura
- Cleaver-Brooks
- Fulton
- Hurst Boiler
- Johnston Boiler
- Columbia Boiler
- Superiour Boiler
- Precision Boilers

High-Efficiency Modular Boiler Systems

- AERCO Benchmark Series
- Lochinvar Crest Series
- Viessmann Vitocrossal
- Cleaver-Brooks ClearFire
- Fulton Endura+
- Laars MagnaTherm
- Raypak XFyre

Boiler Electric or Gas Picture



27-270 Air-Cooled Chiller Specification Sheet

A. General Information

Provide factory-assembled air-cooled chillers complete with compressors, evaporator, air-cooled condenser coils, condenser fans, refrigerant circuits, controls, electrical components, safety devices, and all accessories required for a complete and operational system. Units shall be suitable for outdoor installation, AHRI certified, factory tested, energy efficient, and capable of providing the specified cooling capacity under the scheduled operating conditions. Equipment shall be manufactured by Daikin Applied, Trane, Carrier, York (Johnson Controls), Mitsubishi Electric Trane HVAC, or approved equal.

1. Scope

This section covers the requirements for factory-assembled, air-cooled water chillers intended to provide chilled water for commercial, institutional, industrial, and process cooling applications.

2. Description

- Air-cooled chillers shall be self-contained refrigeration systems that remove heat from a water or water-glycol solution and reject the heat directly to the outdoor atmosphere through air-cooled condensers.
- Units shall be suitable for outdoor installation and designed for continuous operation under the specified environmental conditions.
- The chiller package shall include compressors, evaporator, air-cooled condenser coils, condenser fans, controls, safety devices, refrigerant circuits, and all accessories required for complete operation.

3. Applicable Standards

Equipment shall comply with the latest editions of applicable standards and codes, including:

- AHRI certification requirements.
- ASHRAE Standards.
- International Mechanical Code (IMC).
- National Electrical Code (NEC).
- UL/ETL safety standards.
- Local building, mechanical, and electrical codes.

4. Applications

Air-cooled chillers may be used for:

- Office buildings.
- Educational facilities.
- Healthcare facilities.
- Industrial processes.
- Manufacturing facilities.
- Data centers.
- Government buildings.
- Commercial facilities.
- **5. System Configuration**

Each chiller shall consist of:

- Refrigeration compressor(s).
- Air-cooled condenser coils.
- Condenser fan assemblies.
- Evaporator heat exchanger.
- Refrigerant piping and controls.
- Microprocessor control system.
- Safety protection devices.
- Electrical power and control panel.

6. Refrigeration System

- Refrigeration circuits shall be factory assembled, charged, and tested.
- Units may utilize scroll, screw, or centrifugal compressor technology depending on capacity and application requirements.
- Refrigerants shall comply with applicable environmental regulations.

7. Capacity Range

Air-cooled chillers are generally available in a wide range of capacities suitable for building and process cooling applications, ranging from small commercial systems to large central plant installations. Examples from major manufacturers range from approximately 10 tons to over 500 tons, with larger specialized units available.

8. Energy Efficiency

- Chillers shall be designed for efficient operation at both full-load and part-load conditions.
- Equipment shall comply with applicable energy efficiency requirements and shall incorporate advanced control systems to optimize energy consumption.
- Variable-speed compressors and condenser fan controls may be provided to improve efficiency.

9. Controls

- Each unit shall include a factory-installed microprocessor-based control system.
- Controls shall provide monitoring, diagnostics, alarm management, equipment protection, and Building Automation System (BAS) integration.
- Communication protocols may include BACnet and Modbus.

10. Installation Requirements

- Chillers shall be installed outdoors on a structural concrete pad, steel support structure, or roof-mounted platform designed to support operating loads.
- Adequate clearances shall be maintained for airflow, maintenance, and service access.
- Installation shall conform to manufacturer recommendations.

11. Serviceability

- Components requiring maintenance shall be readily accessible.
- Service panels shall be removable.
- Isolation valves, sensors, and controls shall be arranged for ease of inspection and maintenance.

12. Factory Testing

Prior to shipment, each chiller shall undergo:

- Refrigerant leak testing.

- Electrical testing.
- Control system testing.
- Safety device verification.
- Operational testing.

13. Warranty

- Manufacturer shall provide a standard warranty covering defects in materials and workmanship.
- Extended warranty options shall be available as specified by the Owner.

B. Performance Requirements to Air Chillers

Air-cooled chillers shall provide the scheduled cooling capacity under the specified design conditions and shall maintain leaving chilled-water temperature within ±1°F (±0.5°C) of setpoint. Units shall operate efficiently at full-load and part-load conditions and shall include automatic capacity control, energy optimization, and protective safety functions. Manufacturers shall provide certified performance data, efficiency ratings, sound data, factory test reports, and documentation demonstrating compliance with project requirements. The chiller shall be capable of continuous-duty operation and shall maintain service continuity through independent refrigeration circuits where provided.

1. General Performance Requirements

- The air-cooled chiller shall be capable of providing the scheduled cooling capacity under the specified design conditions.
- Performance ratings shall be based on manufacturer's published data and AHRI-certified performance where applicable.
- The unit shall be designed for continuous operation at full load, part load, and all anticipated operating conditions.

2. Cooling Capacity Performance

- Chiller shall provide not less than 100% of the specified net cooling capacity.
- Capacity ratings shall be based on:
    - Specified entering and leaving chilled-water temperatures.
    - Design chilled-water flow rate.
    - Design outdoor ambient temperature.
    - Specified glycol concentration, if applicable.
- Performance shall be maintained without excessive reduction in capacity at design operating conditions.

3. Temperature Control Performance

- Chiller shall maintain leaving chilled-water temperature within ±1°F (±0.5°C) of the setpoint under stable operating conditions.
- Control system shall automatically respond to load variations to maintain temperature stability.
- Temperature fluctuations shall not adversely impact building or process cooling requirements.

4. Energy Performance

- Chiller shall comply with applicable energy efficiency requirements and applicable editions of ASHRAE Standard 90.1.

- Performance data shall include:
    - Full-load efficiency (kW/Ton).
    - Integrated Part Load Value (IPLV).
    - Energy consumption at design conditions.
- Controls shall automatically optimize operation to achieve maximum energy efficiency.

5. Part-Load Performance

- Unit shall operate efficiently throughout the anticipated load range.
- Capacity control shall automatically match cooling production to building demand.
- Chiller shall minimize compressor cycling and maintain stable operation during low-load conditions.
- Integrated part-load efficiency shall be optimized through compressor and condenser fan modulation.

6. Ambient Operating Range

- Chiller shall operate over the manufacturer's published ambient temperature range.
- Unit shall maintain reliable operation at both high and low outdoor temperature conditions.
- Low-ambient operation capability shall be provided where required by the project.

7. Reliability Requirements

- Chiller shall be designed for continuous-duty operation.
- Refrigeration circuits shall be capable of operating independently where multiple circuits are provided.
- Failure of one circuit or compressor shall not disable unaffected circuits when permitted by the manufacturer's design.
- Protective controls shall prevent equipment damage during abnormal operating conditions.

8. Sound Performance

- Manufacturer shall provide certified sound ratings.
- Sound power and sound pressure levels shall be published for the proposed unit.
- Unit noise levels shall not exceed project requirements.
- Low-noise packages shall be available where specified.

9. Control System Performance

The control system shall:

- Automatically stage compressors and fans.
- Maintain chilled-water temperature setpoints.
- Monitor unit performance continuously.
- Record alarms and operating history.
- Provide fault diagnostics and corrective action guidance.
- Communicate with the Building Automation System (BAS).

10. Availability and Redundancy

For critical applications:

- Multiple refrigeration circuits shall provide partial load capability during component failures.
- Chiller shall continue operating at reduced capacity when possible following the loss of a single refrigeration circuit.

- Control logic shall automatically manage available capacity.

11. Factory Performance Verification

Prior to shipment, the manufacturer shall perform:

- Refrigerant leak testing.
- Electrical testing.
- Controls verification.
- Operational testing.
- Safety shutdown verification.
- Factory quality-control inspections.

12. Documentation Requirements

The manufacturer shall provide:

- Certified performance data.
- AHRI certification documentation.
- Capacity and efficiency ratings.
- Sound performance data.
- Selection software reports.
- Operating curves and correction factors.
- Factory test reports.

C. Capacity Requirements

Provide an air-cooled chiller with a minimum net cooling capacity of variety of tons (variety of kW) at the scheduled design conditions. The unit shall deliver not less than 100 percent of the specified cooling capacity and shall maintain the scheduled leaving chilled-water temperature throughout the operating range. Manufacturers shall provide certified performance data, AHRI certification, capacity correction factors, and selection reports verifying compliance with the project requirements. Capacity control shall automatically match cooling output to building load while maximizing energy efficiency and minimizing compressor cycling.

1. General Capacity Requirements

- The air-cooled chiller shall be capable of providing the cooling capacity indicated on the project drawings and equipment schedules.
- Cooling capacity shall be certified by the manufacturer and verified by AHRI certification where applicable.
- Capacity ratings shall be based on the specified design conditions and shall account for all accessories and options provided with the unit.

2. Design Conditions

The chiller shall achieve the scheduled capacity at the design conditions specified for:

- Entering and leaving chilled-water temperatures.
- Chilled-water flow rate.
- Ambient outdoor air temperature.
- Water-glycol solution concentration, where applicable.
- Altitude correction factors, where applicable.

3. Nominal Capacity

- Chiller capacity shall be expressed in:

    - Tons of refrigeration (TR); and/or
    - Kilowatts (kW) of cooling.
- One ton of refrigeration shall be equivalent to 12,000 BTU/hr (3.517 kW).

4. Capacity Tolerance

- Actual delivered cooling capacity shall not be less than 100% of the scheduled design capacity.
- Manufacturers shall submit certified performance ratings demonstrating compliance.
- Capacity reductions due to altitude, glycol concentration, or ambient temperature shall be clearly identified.

5. Full-Load Performance

- The chiller shall provide the scheduled cooling capacity at full-load conditions without exceeding the specified energy consumption.
- Performance data shall include:
    - Cooling capacity
    - Power input (kW)
    - Efficiency (kW/Ton)
    - Refrigerant type
    - Water pressure drop

6. Part-Load Performance

- The chiller shall efficiently operate at varying loads ranging from minimum capacity to 100% design load.
- Capacity control shall be achieved by:
    - Compressor staging,
    - Variable-speed compressors,
    - Variable-frequency drives (VFDs),
    - Or other approved manufacturer methods.
- The unit shall maintain stable leaving-water temperature throughout the operating range.

7. Minimum Unloading Capability

- Chiller shall be capable of unloading to a minimum percentage of full capacity as provided by the manufacturer.
- Multiple-compressor units shall automatically stage compressors to match building load requirements.
- Capacity control shall minimize compressor cycling and maximize equipment life.

8. Future Expansion Considerations

Where specified:

- Chiller capacity shall accommodate future load growth.
- Modular or expandable chiller configurations may be provided.
- Additional capacity capability shall be identified in the manufacturer's proposal.

9. Redundancy Requirements

For critical facilities such as hospitals, data centers, or emergency operations centers:

- Multiple refrigeration circuits shall be provided.
- Partial cooling capacity shall remain available in the event of a compressor or circuit failure.

- Redundant capacity requirements (N+1 or as specified) shall be identified on the contract documents.

10. Capacity Verification

Manufacturers shall submit:

- Selection software reports.
- Certified performance data.
- AHRI certification documentation.
- Performance curves showing operation across the expected range of ambient temperatures and load conditions.
- Capacity correction factors for non-standard operating conditions.

11. Acceptance Requirements

The proposed air-cooled chiller shall:

- Meet or exceed the scheduled cooling capacity.
- Maintain the specified leaving-water temperature.
- Operate continuously at design ambient conditions.
- Comply with specified energy-efficiency requirements.
- Demonstrate performance through factory testing and certified selection data.

D. Refrigeration System for Air Chillers

Compressors

Provide factory-installed, high-efficiency compressors of scroll, screw, or centrifugal design as recommended by the manufacturer. Compressors shall be suitable for continuous-duty operation and shall include vibration isolation, automatic capacity control, motor protection, and integration with the chiller microprocessor control system. Each refrigeration circuit shall include all accessories necessary for safe and reliable operation, including expansion devices, filter driers, service valves, safety controls, and monitoring devices. The system shall be factory assembled, charged, tested, and ready for operation upon installation.

1. General

- The air-cooled chiller shall be furnished with factory-installed refrigerant compressors specifically designed for chiller service.
- Compressors shall be selected to deliver the scheduled cooling capacity under the specified operating conditions.
- The refrigeration system shall be factory assembled, charged, tested, and ready for operation.
- Compressors shall be mounted to minimize vibration and noise transmission.

2. Compressor Type

Acceptable compressor types include:

- Scroll compressors
- Rotary screw compressors
- Magnetic-bearing centrifugal compressors
- Other manufacturer-standard high-efficiency compressor technologies

The compressor type shall be suitable for the required capacity and application.

3. Compressor Construction

- Compressors shall be hermetic or semi-hermetic design.
- Moving parts shall be precision-machined and factory lubricated.
- Compressors shall be designed for continuous-duty operation.
- Each compressor shall be mounted on vibration-isolation devices.
- Multiple-compressor arrangements shall be provided where required for capacity control and redundancy.

4. Capacity Control

Compressors shall incorporate automatic capacity control through one or more of the following methods:

- Compressor staging
- Variable-speed drives (VFDs)
- Slide-valve modulation
- Inverter technology
- Digital unloading controls

The control method shall maximize part-load efficiency and maintain stable leaving-water temperature.

5. Minimum Compressor Protection

Each compressor shall include protection against:

- Overload conditions
- High discharge temperature
- Excessive current draw
- Phase loss
- Phase imbalance
- Phase reversal
- Low oil pressure (where applicable)
- High refrigerant pressure
- Low refrigerant pressure
- Motor overheating
- Short cycling

6. Lubrication System

- Compressors requiring oil lubrication shall be provided with a factory-installed lubrication system.
- Oil pumps, separators, reservoirs, and controls shall be supplied as required by the compressor design.
- The control system shall monitor lubrication status and provide alarms for abnormal conditions.
- Oil management systems shall ensure proper oil return during all operating conditions.

7. Energy Efficiency

- Compressors shall be high-efficiency design optimized for both full-load and part-load operation.
- Variable-speed compressor technology shall be provided where available.
- Compressor performance shall contribute to compliance with specified AHRI and ASHRAE efficiency requirements.
- Compressor unloading shall be smooth and energy efficient.

8. Refrigerant Circuit Integration

Each refrigeration circuit shall include:

- Compressor(s)
- Expansion device
- Condenser coil
- Evaporator
- Filter drier
- Sight glass
- Service valves
- Pressure relief devices
- Refrigerant sensors as required

Multiple-circuit chillers shall permit continued operation of unaffected circuits during a single-circuit failure.

9. Controls and Monitoring

The microprocessor control system shall monitor:

- Compressor operating status
- Motor current
- Operating hours
- Suction pressure
- Discharge pressure
- Refrigerant temperatures
- Oil pressure (where applicable)
- Compressor loading percentage

The control system shall automatically stage and optimize compressor operation to maximize efficiency and equipment life.

10. Noise and Vibration Control

- Compressors shall be mounted with vibration-isolation supports.
- Refrigerant piping connections shall minimize vibration transmission.
- Compressor operation shall not exceed the manufacturer's published sound ratings.
- Sound attenuation packages shall be available when specified.

11. Serviceability

- Compressors shall be accessible for inspection and service.
- Service valves shall be provided to facilitate maintenance.
- Major components shall be replaceable without requiring complete disassembly of the chiller.

12. Factory Testing

Prior to shipment, the manufacturer shall perform:

- Refrigerant leak testing.
- Electrical testing.
- Compressor rotation verification.
- Control system functional testing.
- Safety device testing.
- Complete chiller operational testing.

E. Heat Exchanger for Air Chillers

Provide a factory-installed evaporator heat exchanger of brazed plate or shell-and-tube construction designed for the scheduled cooling capacity and operating conditions. The heat exchanger shall be constructed of corrosion-resistant materials, factory insulated with closed-cell insulation and vapor barrier, and tested for design working pressure. The evaporator shall be equipped with drain and vent connections, freeze protection controls, temperature and pressure sensors, and shall be fully integrated with the chiller microprocessor control system. Performance ratings shall be certified by the manufacturer and suitable for continuous operation under the specified conditions.

1. General Requirements

- All motors shall be factory installed, wired, and tested.
- Motors shall be sized to operate continuously without exceeding nameplate ratings.
- Motors shall be suitable for outdoor service and ambient conditions specified for the project.
- Motor performance shall comply with applicable NEMA and IEEE standards.

2. Compressor Motors

- Compressor motors shall be hermetic type and integral to the compressor assembly.
- Motors shall be specifically designed for refrigerant-cooled operation.
- Compressor motors shall include:
    - Internal overload protection
    - Thermal protection
    - Overcurrent protection
    - Phase-loss protection
    - Phase-reversal protection
- Motors shall be suitable for frequent cycling and part-load operation.

3. Condenser Fan Motors

- Condenser fan motors shall be direct-drive type.
- Motors shall be permanently lubricated and require minimal maintenance.
- Fan motors shall be weatherproof and suitable for outdoor installation.
- Each fan motor shall include thermal overload protection.
- Motors shall be dynamically balanced to minimize vibration and noise.

4. Energy Efficiency

- Motors shall be premium-efficiency design.
- Variable-speed motors or motors controlled by Variable Frequency Drives (VFDs) shall be provided where applicable to improve part-load efficiency.
- Fan speed modulation shall automatically optimize condenser performance and energy consumption.

5. Motor Enclosures

- Motors shall be Totally Enclosed Air Over (TEAO), Totally Enclosed Fan Cooled (TEFC), or manufacturer-standard enclosure suitable for the application.
- Enclosures shall protect internal components from moisture, dust, and environmental contaminants.

6. Electrical Characteristics

- Motors shall operate at the scheduled voltage, phase, and frequency.

- All motors shall be compatible with the supplied electrical distribution system.
- Starting current shall be minimized through soft-start technology, VFDs, or manufacturer-approved starting methods.

7. Vibration and Noise Control

- Motors shall be mounted to minimize vibration transmission to the chiller frame.
- Rotating assemblies shall be factory balanced.
- Motor operation shall not produce excessive noise beyond specified unit sound ratings.

8. Monitoring and Protection

The control system shall monitor motor operation and provide alarms or shutdown for:

- Motor overload
- Overtemperature conditions
- Locked rotor condition
- Phase loss
- Phase imbalance
- Phase reversal
- Excessive current draw

9. Factory Testing

- Motors shall be factory tested for proper operation prior to shipment.
- Electrical continuity and insulation resistance tests shall be performed.
- Motor rotation and control sequence shall be verified.

F. Fan Section for Air Chillers

Provide factory-installed axial condenser fans complete with direct-drive premium-efficiency motors, safety guards, fan supports, and automatic speed control. Fans shall be statically and dynamically balanced, suitable for outdoor service, and integrated with the chiller microprocessor control system. Fan operation shall automatically modulate to maintain condenser pressure, optimize energy efficiency, and minimize noise. All fan assemblies shall be factory tested prior to shipment.

1. General

- The air-cooled chiller shall be provided with a factory-assembled condenser fan section designed to reject heat efficiently under all specified operating conditions.
- The fan section shall be factory-wired, tested, and fully integrated with the chiller control system.
- Fans shall be suitable for continuous outdoor operation.

2. Fan Construction

- Condenser fans shall be direct-drive axial-flow type unless otherwise specified.
- Fan blades shall be constructed of aluminum, galvanized steel, composite material, or other corrosion-resistant material.
- Fan assemblies shall be statically and dynamically balanced.
- Fans shall be designed to provide stable airflow throughout the operating range.

3. Fan Motors

- Each fan shall be equipped with an individual motor.
- Motors shall be premium-efficiency, weatherproof type suitable for outdoor service.
- Motors shall be permanently lubricated and require minimal maintenance.

- Fan motors shall include thermal overload protection.

4. Variable-Speed Control

- Fans shall be controlled by variable-speed drives (VFDs), electronically commutated (EC) motors, or other manufacturer-approved capacity control methods.
- Fan speed shall automatically modulate to maintain optimum condensing pressure and maximize energy efficiency.
- Control sequences shall minimize fan cycling and reduce energy consumption.

5. Noise Control

- Fan design shall minimize sound generation during operation.
- Low-noise fan packages shall be available where project requirements dictate reduced sound levels.
- Fan tip speed shall be selected to balance cooling performance and acoustical performance.
- Unit sound ratings shall be provided by the manufacturer.

6. Protective Features

- Fan guards shall be provided on all exposed rotating components.
- Guards shall comply with applicable safety requirements.
- Fans shall be protected against damage from vibration, excessive motor temperature, and electrical faults.

7. Fan Deck and Supports

- Fan deck shall be fabricated from galvanized steel or corrosion-resistant materials.
- Fan supports shall be structurally reinforced to prevent excessive vibration.
- Fasteners shall be corrosion resistant.

8. Controls and Monitoring

The control system shall monitor and control:

- Fan operating status.
- Fan speed.
- Motor current.
- Fan failure alarms.
- Condensing pressure.
- Ambient temperature.

The controller shall automatically stage and modulate fan operation to maintain efficient chiller performance under changing load and ambient conditions.

9. Redundancy and Reliability

- Multiple-fan units shall be capable of continued operation upon the failure of a single fan where permitted by the manufacturer's design.
- Fan arrangement shall promote uniform airflow across condenser coils.
- Fan motors and controls shall be accessible for maintenance and replacement.

10. Factory Testing

- Fans shall be factory tested for:
    - Proper rotation
    - Electrical operation
    - Speed control functionality
    - Vibration levels

- Integration with chiller controls

G. Motors

Provide factory-installed compressor and condenser fan motors specifically designed for air-cooled chiller service. Motors shall be premium-efficiency, continuous-duty rated, and protected against overload, overheating, phase loss, and phase reversal. Condenser fan motors shall be direct-drive, permanently lubricated, and suitable for outdoor installation. Motors shall be factory wired, tested, and integrated with the chiller control system for monitoring, protection, and energy-efficient operation.

1. General Requirements

- All motors shall be factory installed, wired, and tested.
- Motors shall be sized to operate continuously without exceeding nameplate ratings.
- Motors shall be suitable for outdoor service and ambient conditions specified for the project.
- Motor performance shall comply with applicable NEMA and IEEE standards.

2. Compressor Motors

- Compressor motors shall be hermetic type and integral to the compressor assembly.
- Motors shall be specifically designed for refrigerant-cooled operation.
- Compressor motors shall include:
  - Internal overload protection
  - Thermal protection
  - Overcurrent protection
  - Phase-loss protection
  - Phase-reversal protection
- Motors shall be suitable for frequent cycling and part-load operation.

3. Condenser Fan Motors

- Condenser fan motors shall be direct-drive type.
- Motors shall be permanently lubricated and require minimal maintenance.
- Fan motors shall be weatherproof and suitable for outdoor installation.
- Each fan motor shall include thermal overload protection.
- Motors shall be dynamically balanced to minimize vibration and noise.

4. Energy Efficiency

- Motors shall be premium-efficiency design.
- Variable-speed motors or motors controlled by Variable Frequency Drives (VFDs) shall be provided where applicable to improve part-load efficiency.
- Fan speed modulation shall automatically optimize condenser performance and energy consumption.

5. Motor Enclosures

- Motors shall be Totally Enclosed Air Over (TEAO), Totally Enclosed Fan Cooled (TEFC), or manufacturer-standard enclosure suitable for the application.
- Enclosures shall protect internal components from moisture, dust, and environmental contaminants.

6. Electrical Characteristics

- Motors shall operate at the scheduled voltage, phase, and frequency.

- All motors shall be compatible with the supplied electrical distribution system.
- Starting current shall be minimized through soft-start technology, VFDs, or manufacturer-approved starting methods.

7. Vibration and Noise Control

- Motors shall be mounted to minimize vibration transmission to the chiller frame.
- Rotating assemblies shall be factory balanced.
- Motor operation shall not produce excessive noise beyond specified unit sound ratings.

8. Monitoring and Protection

The control system shall monitor motor operation and provide alarms or shutdown for:

- Motor overload
- Overtemperature conditions
- Locked rotor condition
- Phase loss
- Phase imbalance
- Phase reversal
- Excessive current draw

9. Factory Testing

- Motors shall be factory tested for proper operation prior to shipment.
- Electrical continuity and insulation resistance tests shall be performed.
- Motor rotation and control sequence shall be verified.

H. Electrical Requirements for Air Chillers

Air-cooled chillers shall be factory wired, tested, and provided with a weatherproof electrical control panel containing all control devices, motor protection, safety interlocks, and BAS communication interfaces required for operation. The unit shall include protection against overcurrent, phase loss, phase reversal, undervoltage, overvoltage, and motor overload conditions. All internal wiring shall be factory installed and labeled, with clearly identified terminals provided for field power and control connections. The equipment shall comply with the National Electrical Code (NEC) and all applicable local electrical regulations.

1. Power Supply

- Unit shall operate on the voltage, phase, and frequency indicated on the contract drawings.
- Electrical characteristics shall match the available facility power supply.
- Acceptable voltage variation shall be in accordance with manufacturer requirements.
- Chiller shall be suitable for operation under the specified power conditions without reduction in performance.

2. Electrical Enclosure

- Factory-mounted control panel shall be provided.
- Enclosure shall be suitable for outdoor installation.
- All components shall be protected from weather, dust, and corrosion.
- Access doors shall be lockable and gasketed.

3. Main Disconnect

- Provide a factory-mounted, lockable disconnect switch where required.

- Disconnect shall comply with applicable electrical codes.
- Switch shall be readily accessible for maintenance and emergency shutdown.

4. Motor Requirements

- Compressor motors shall be hermetic type and factory installed.
- Condenser fan motors shall be premium-efficiency design.
- Motors shall be protected against:
    - Overload
    - Overheating
    - Phase loss
    - Phase imbalance
    - Phase reversal

5. Starters and Drives

- Compressors shall include factory-installed starters or variable frequency drives (VFDs) where applicable.
- VFDs shall provide soft-start capability and energy optimization.
- Starters and drives shall be coordinated with motor ratings.

6. Control Power

- Control transformer shall be factory installed.
- Control circuits shall be protected by individual fuses or circuit breakers.
- Low-voltage control wiring shall be separated from power wiring.

7. Protective Devices

The electrical system shall include protection against:

- Short circuit
- Ground fault
- Overcurrent
- Undervoltage
- Overvoltage
- Phase loss
- Phase reversal
- Motor overload
- Compressor lockout
- Control voltage failure

8. Wiring Requirements

- All internal wiring shall be factory installed and tested.
- Wiring shall conform to NEC and local electrical code requirements.
- Conductors shall be clearly identified.
- Terminal blocks shall be labeled for field connections.

9. Field Connections

Manufacturer shall provide clearly identified terminals for:

- Primary power supply
- Equipment grounding conductor
- Remote start/stop contacts
- Emergency shutdown contacts
- Building automation system interface

- Alarm contacts

10. Building Automation Integration

Electrical controls shall support communication through:

- BACnet/IP
- BACnet MS/TP
- Modbus TCP/IP
- Modbus RTU

The control panel shall provide points for:

- Unit status
- Alarm status
- Compressor status
- Operating temperatures
- Energy consumption
- Remote start/stop

11. Grounding

- Chiller shall include a grounding lug within the electrical enclosure.
- Equipment shall be grounded in accordance with NEC and local authority requirements.
- All metallic components shall be bonded to the equipment grounding system.

12. Factory Testing

Prior to shipment, the manufacturer shall perform:

- Electrical continuity testing.
- Wiring verification.
- Control system functional testing.
- Motor rotation verification.
- Safety device testing.

I. Manufacturers shall provide:

- Minimum five (5) years of experience manufacturing air-cooled chillers of similar size and capacity.
- Factory-authorized service organization with trained technicians and local service support.
- AHRI-certified equipment performance data.

J. **Controls**

Provide factory-mounted microprocessor-based controls capable of automatic chiller operation, monitoring, energy optimization, and equipment protection. Controls shall include compressor and fan sequencing, fault diagnostics, alarm history, trending, and BAS integration via BACnet/IP. The system shall provide local and remote access to operating parameters, setpoints, alarms, and energy consumption data. Equipment shall automatically restart following power interruptions and shall maintain operation of unaffected refrigeration circuits during single-circuit failures.

1. Microprocessor Control System

- Chiller shall be furnished with a factory-mounted and factory-programmed microprocessor-based control system.

- Controls shall continuously monitor and regulate chiller operation.
- Control panel shall be weather-resistant and suitable for outdoor installation.
- Operator interface shall include an LCD touchscreen or equivalent graphical display.

2. Operating Functions

The control system shall automatically perform:

- Compressor staging and unloading.
- Condenser fan staging and speed control.
- Leaving chilled-water temperature control.
- Start-up and shutdown sequencing.
- Automatic restart following a power interruption.
- Lead-lag operation where multiple chillers are installed.

3. Monitoring Capabilities

The control system shall continuously monitor:

- Leaving and entering chilled-water temperatures.
- Refrigerant pressures and temperatures.
- Compressor operating status.
- Condenser fan status.
- Ambient air temperature.
- Motor current and voltage.
- Overall unit capacity and operating efficiency.

4. Safety Controls and Protective Devices

The unit shall include automatic shutdown and alarm functions for:

- High refrigerant pressure.
- Low refrigerant pressure.
- Compressor overload.
- Motor overcurrent.
- High discharge temperature.
- Evaporator freeze protection.
- Low chilled-water flow.
- Phase loss.
- Phase reversal.
- Under-voltage and over-voltage conditions.
- Sensor failure.

The affected circuit shall be isolated without interrupting operation of remaining circuits whenever possible.

5. Alarm Management

Controls shall provide:

- Visual and audible alarms.
- Alarm history storage.
- Time- and date-stamped fault records.
- Automatic fault diagnostics.
- Recommended corrective action messaging.

6. Energy Management Functions

The control system shall include:

- Automatic capacity optimization.
- Demand limiting.
- Setpoint reset capabilities.
- Variable-speed compressor and fan control where applicable.
- Part-load efficiency optimization.
- kW demand monitoring and reporting.

7. Building Automation System Integration

The chiller shall communicate directly with the BAS using one or more of the following protocols:

- BACnet/IP
- BACnet MS/TP
- Modbus RTU
- Modbus TCP/IP
- LonWorks (if required)

Information available through the BAS shall include:

- Unit start/stop status.
- Operating mode.
- Alarm status.
- Temperatures and pressures.
- Capacity and energy usage.
- Run hours for major components.

8. Remote Access

- Controls shall support remote monitoring and diagnostics.
- Remote access shall be password protected.
- Authorized users shall be able to view operating parameters, alarms, trends, and reports.

9. Trending and Data Logging

The controller shall provide:

- Historical trending of operating data.
- Runtime logging for compressors and fans.
- Energy consumption tracking.
- Exportable performance reports.

10. Display Requirements

The local display shall provide:

- Chiller status.
- Leaving chilled-water temperature.
- Setpoints.
- Refrigerant pressures and temperatures.
- Compressor operating information.
- Active alarms and fault history.

K. Energy Efficiency Requirements

Air-cooled chillers shall be AHRI-certified and comply with the latest applicable ASHRAE 90.1 energy-efficiency requirements. Chillers shall be designed for high part-load

performance and shall include variable-capacity compressors and condenser fan control. The unit IPLV shall be optimized for reduced annual energy consumption. Controls shall provide automatic energy optimization, fault diagnostics, and integration with the building automation system. The manufacturer shall submit certified performance data demonstrating compliance with all specified efficiency requirements.

1. Minimum Efficiency Ratings

- Chillers shall comply with the latest edition of **ASHRAE Standard 90.1** energy-efficiency requirements applicable to air-cooled chillers.
- Equipment shall be certified by the **Air-Conditioning, Heating, and Refrigeration Institute (AHRI)** for published performance.
- Minimum efficiency shall be expressed in:
    - Full-load efficiency (kW/Ton)
    - Integrated Part Load Value (IPLV) or Integrated Energy Efficiency Ratio (IEER), as applicable.
- Equipment shall meet or exceed all applicable federal, state, provincial, and local energy regulations.

2. Part-Load Performance

- Chillers shall provide high efficiency under both full-load and part-load conditions.
- Variable-speed compressor technology shall be provided where available.
- Chiller controls shall optimize compressor staging and unloading to maximize part-load efficiency.
- Integrated part-load efficiency shall be given priority when evaluating competing equipment since most chillers operate at partial load for much of the year.

3. Compressor Efficiency

- Compressors shall be high-efficiency scroll, screw, or magnetic-bearing centrifugal type.
- Variable-frequency drives (VFDs) shall be provided where required to improve efficiency during fluctuating cooling demands.
- Compressor motors shall be premium-efficiency design.

4. Fan Efficiency

- Condenser fans shall utilize electronically commutated (EC) motors or variable-speed drives where available.
- Fan operation shall automatically modulate to maintain optimum condensing pressure while minimizing energy consumption.
- Low-energy fan designs shall be incorporated into the equipment.

5. Heat Exchanger Performance

- Evaporator and condenser coils shall be designed to minimize pressure drop while maximizing heat-transfer efficiency.
- Coil surfaces shall be optimized for energy-efficient operation across expected ambient temperature ranges.
- Refrigerant distribution systems shall support efficient heat exchange at varying loads.

6. Refrigerant Requirements

- Refrigerants shall have low Global Warming Potential (GWP) where reasonably available.
- Equipment shall utilize refrigerants that comply with current environmental regulations.

- Preference may be given to chillers utilizing next-generation refrigerants with reduced environmental impact.

7. Control System Optimization

- Microprocessor-based controls shall continuously optimize:
  - Compressor staging
  - Condenser fan speed
  - Leaving chilled-water temperature
  - Energy consumption
- Controls shall automatically adapt operation to changing load conditions.
- Fault detection and diagnostics shall be included to identify energy-wasting operating conditions.

8. Building Automation Integration

- Chiller shall be capable of integration with Building Automation Systems (BAS).
- Native support for BACnet/IP, BACnet MS/TP, or Modbus communications shall be provided.
- Energy monitoring and reporting functions shall be available.
- Controls shall support demand-limiting and energy-management strategies.

9. Standby Energy Consumption

- Control systems and auxiliary components shall minimize standby power consumption.
- Automatic shutdown and restart functions shall reduce unnecessary operation during low-demand periods.

10. Energy Documentation

Manufacturers shall provide:

- Certified AHRI performance data.
- Full-load and part-load efficiency ratings.
- Annual energy consumption estimates, when requested.
- Lifecycle cost analysis information.
- Manufacturer's selection software reports confirming scheduled performance.

L. Construction Requirements for Air Chillers

Air-cooled chillers shall be factory-assembled packaged units complete with compressors, condenser coils, evaporator, refrigeration controls, microprocessor control system, safety devices, and electrical components. Units shall be constructed with galvanized steel framing, corrosion-resistant exterior panels, vibration isolation, removable service panels, AHRI certification, and factory testing prior to shipment.

1. General Construction

- Factory-assembled, factory-wired, and factory-tested air-cooled chiller.
- Single-source manufacturer responsible for packaged unit.
- Unit shall be designed for outdoor installation.
- Refrigeration system shall comply with applicable ASHRAE and local code requirements.
- Chiller shall be AHRI certified and UL/ETL listed.

2. Structural Frame and Base

- Heavy-gauge galvanized steel base frame.
- Structural frame designed to support all operating, wind, and transportation loads.

- Lifting points shall be clearly identified.
- Base shall permit forklift and crane handling without damage.

3. Casing and Panels

- Galvanized steel panels with baked polyester powder-coat finish.
- Corrosion-resistant construction for outdoor exposure.
- Removable access panels for service and maintenance.
- Fasteners shall be stainless steel or corrosion-resistant coated steel.

4. Compressors

- Hermetic scroll, screw, or centrifugal compressors as specified.
- Compressors mounted on vibration-isolation devices.
- Individual compressor isolation valves provided.
- Internal motor protection and thermal overload protection included.

5. Condenser Section

- Air-cooled condenser coils constructed of:
    - Copper tubes with aluminum fins; or
    - Microchannel aluminum construction.
- Coils protected with hail guards.
- Factory-applied corrosion-resistant coating where required.
- Condenser fans shall be direct-drive, low-noise type.

6. Evaporator

- Brazed plate or shell-and-tube evaporator.
- Insulated with closed-cell insulation.
- Insulation protected with moisture-resistant jacketing.
- Evaporator designed for specified working pressure.

7. Refrigeration Circuit

- Factory-installed refrigerant charge.
- Refrigerant selected to meet applicable environmental regulations.
- Refrigeration circuit shall include:
    - Electronic expansion valve
    - Filter drier
    - Sight glass
    - Relief devices
    - High- and low-pressure safety controls
    - Isolation valves

8. Electrical Requirements

- Single-point power connection preferred.
- NEMA-rated control panel suitable for outdoor installation.
- Lockable disconnect switch (where specified).
- Phase-loss, phase-reversal, and undervoltage protection.
- All wiring identified and terminated in accordance with NEC requirements.

9. Controls

- Microprocessor-based control system.
- Touchscreen or web-enabled interface.
- BACnet/IP, BACnet MS/TP, Modbus, or LonWorks communication capability.

- Capabilities shall include:
    - Automatic staging
    - Alarm history
    - Trend logging
    - Remote monitoring
    - Energy optimization functions

10. Vibration and Sound Control

- Compressors and piping isolated from frame.
- Flexible refrigerant and water connections where applicable.
- Unit sound levels shall comply with project requirements.
- Low-noise fan packages available if required.

11. Insulation

- Closed-cell, non-hygroscopic insulation.
- Minimum ½-inch to 1-inch thickness on chilled-water components.
- Vapor barrier integral with insulation.

12. Factory Testing

- Factory pressure testing of refrigeration circuits.
- Refrigerant leak testing.
- Electrical continuity testing.
- Functional performance testing before shipment.
- Factory test reports provided upon request.

13. Finish and Corrosion Protection

- Exterior components factory finished for outdoor service.
- Coastal applications shall include enhanced coil and cabinet protection.
- Exposed hardware shall be corrosion resistant.

M. Warranty Requirements

- Minimum one-year parts and labor warranty.
- Compressor warranty minimum five years.
- Factory startup and commissioning included.

N. Suggested Manufacturers for Air Chillers

These are the typically recommended Manufacturers but not limited to what could be included in this solicitation but these work best for educational, municipal, healthcare or governmental type agencies.

- Daikin Applied
- Trane
- Carrier
- Johnson Controls (York)
- Mitsubishi Electric Trane HVAC
- Other Manufacturers that would have Nationwide Service Support, AHRI Certified equipment, Proven performance history, and etc.

Air Chillers Picture

