

**THE CITY OF OKLAHOMA CITY**  
A Municipal Corporation

**PRICING AGREEMENT**

APPROVED by the Council and SIGNED by the Mayor of The City of Oklahoma City this

20TH day of JUNE, 2023.

ATTEST:

*Amy K. Simpson*  
CITY CLERK



*David Holt*  
MAYOR

Reviewed for form and legality.

*Carol Sanett*

ASSISTANT MUNICIPAL COUNSELOR

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**Supplier: Hunter Mechanical & Controls, Inc.**

**BID/PRICING AGREEMENT/CONTRACT FORM & NON-DISCRIMINATION  
STATEMENT**  
**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS  
DOCUMENT PRIOR TO SUBMITTING IN THE ELECTRONIC BID SYSTEM**

**Please be aware that typing in your password acts as your electronic signature, which is  
just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

**THIS DOCUMENT MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID  
OR THE BID WILL BE REJECTED**

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**INSTRUCTIONS:** This document MUST be electronically signed and submitted with the bid for the bid to be valid. Failure to electronically sign the this document prior to submitting the electronic bid will result in rejection of your bid. This document constitutes your bid and will be the Pricing Agreement/Contract document under which you are to perform, should your bid be accepted, so it must be properly and completely executed. It is, therefore, essential that you are aware of its terms, as well as those contained in the specifications.

Submit this electronically signed document, along with all accompanying documents:

THIS PRICING AGREEMENT/CONTRACT is made and entered into, by and between **Hunter Mechanical & Controls, Inc.** hereinafter referred to as "Bidder" and The City of Oklahoma City, a municipal corporation, or a participating Public Trust of which The City of Oklahoma City is Beneficiary hereinafter referred to as the "Contracting Entity."

WITNESSETH:

WHEREAS, the governing body of the Contracting Entity has approved certain specifications and requested by notice that bids be submitted thereon; and

WHEREAS, this document until executed by the Mayor/Chairman of the Contracting Entity constitutes the Bidder's proposal; and

NOW, THEREFORE, that in consideration of the covenants, agreements and representations as hereinafter set forth, it is mutually agreed by the parties that:

1. The Bidder agrees to sell and deliver to the Contracting Entity, the items of material and/or services, specified in the pricing section of the electronic bid submittal, which is attached hereto and made a part of this Pricing Agreement/Contract. List the prompt payment discount, if any, for this agreement in the space provided below:

Discount for Prompt Payment **0% 0 Days**

2. The Bidder expressly warrants that all articles, material, and/or work covered in this Pricing Agreement/Contract will conform to the specifications and electronic bid documents attached to this bid and are hereby incorporated, as if set forth in full herein; and further warrants that the same shall be of good material and workmanship, and free from defects.

3. The Bidder understands that all bids are to be submitted in U.S. dollars at a firm price. Bids submitted in any currency other than U.S. dollars will be rejected.

4. The Bidder also understands that all invoices shall be submitted in U.S. dollars and agrees to accept payment in U.S. dollars as full satisfaction of the invoiced amount.

5. If any of the goods fail to meet the warranties contained in Paragraph 2, above, the Bidder, upon notice from the Contracting Entity, shall promptly correct or replace the same at the Bidder's expense. If the Bidder shall fail to so do, the Contracting Entity may cancel this order as to all such goods, and in addition, may cancel the then remaining balance of this order. After notice to the Bidder, all such goods will be held

at the Bidder's risk. The Contracting Entity may, at the Bidder's direction, make available such goods to be returned to the Bidder at the Bidder's risk, and all transportation charges, both to and from the original destination, shall be paid by the Bidder. Any payment for such goods shall be refunded by the Bidder unless the Bidder promptly corrects or replaces the same at the Bidder's expense.

6. The Contracting Entity agrees to pay to the Bidder the price and amount in accordance with Paragraph 1 above, based on the quantity actually purchased, upon delivery to and acceptance by the Contracting Entity, of the material and/or service[s] above described and upon the filing by the Bidder, and approval by the Contracting Entity, of a verified claim for the amount due.

7. The Bidder agrees, in connection with the performance of work under this Pricing Agreement/Contract:

a. That the Bidder will not discriminate against any employee or applicant for employment, because of race, creed, color, sex, age, national origin, ancestry or disability. The Bidder shall take affirmative action to ensure that employees are treated without regard to their race, creed, color, age, national origin, sex, ancestry or disability. Such actions shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment, advertising, lay-off, termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Bidder agrees to post, in a conspicuous place available to employees and applicants for employment, notices to be provided by the City Clerk/Secretary of the Contracting Entity setting forth the provisions of this section, and;

b. That the Bidder agrees to include this non-discrimination clause in any subcontracts connected with the performance of this Pricing Agreement/Contract.

8. In the event of the Bidder's non-compliance with the above non-discrimination clause, this Pricing Agreement/Contract may be canceled or terminated by the Contracting Entity. The Bidder may be declared by the Contracting Entity ineligible for further Pricing Agreement[s]/Contract[s] with the Contracting Entity until satisfactory proof of intent to comply is made by the Bidder.

9. The risk of loss or damage shall be borne by the Bidder at all times until the acceptance of goods, properly packed, by the Contracting Entity.

10. This Pricing Agreement/Contract, specifications, electronic bid submittal documents and any attachments constitutes the entire understanding and agreement of the parties upon the subject matter hereof. There is no agreement, oral or otherwise, which is not contained in or attached to this Pricing Agreement/Contract. This Pricing Agreement/Contract may not be modified or assigned unless approved in writing and signed by both parties.

11. The parties assume and understand that the variables in the Bidder's cost of performance may fluctuate; consequently, the parties agree that any fluctuations in the Bidder's costs will not alter the Bidder's obligations under this Pricing Agreement/Contract nor excuse performance or delay on the Bidder's part.

12. This Pricing Agreement/Contract shall be inoperative during such period of time that the aforesaid delivery or acceptance may be rendered impossible by reason of fire, Act of God or government regulation. Provided, however, to the extent that the Bidder has any commercially reasonable alternative method of performing this Pricing Agreement/Contract by purchase on the market or otherwise, the Bidder shall not be freed of any obligations hereunder by this clause, even though the goods intended for this Pricing Agreement/Contract were destroyed or their delivery delayed because of an event described above.

13. The shipping or receiving of any goods under this Pricing Agreement/Contract shall not be deemed, or be, a waiver of any right to damages for any prior failure to ship or receive any goods.

14. This Pricing Agreement/Contract shall be governed by the laws of the State of Oklahoma.

15. The Bidder shall be responsible for complying with all applicable federal, state and local laws.

16. If submitting a bid for services, the Bidder certifies that they, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes but is not limited to the free Employment Verification Program (E-Verify) through the Department of Homeland Security and available at [www.dhs.gov/E-Verify](http://www.dhs.gov/E-Verify).

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**The undersigned individual states that the Bidder will be bound by all components of its bid, the specification, the terms and conditions of the Pricing Agreement/Contract, and the requirements for Bidders.**

WITNESS the hands of the parties hereto:

**THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID FOR THE BID TO BE VALID**

**Note: The owner or an officer of the business or corporation may sign this document. A Corporate Seal or a letter of authorization is needed for any other signer. For instance, if a Salesman or Manager signs this form, a letter of authorization or Corporate Seal is to be attached.**

**Randal K. Hunter**  
Type Name of Authorized Agent

**President**  
Title of Authorized Agent

**Hunter Mechanical & Controls, Inc. 5305 N. Santa Fe Ave, 73118**  
**Oklahoma City, OK**  
Company Name and Address Zip Code

**405-525-2110 405-525-2126**  
Telephone Number and Fax Number if any

**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

**THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID OR THE BID WILL BE REJECTED**

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**Supplier: Hunter Mechanical & Controls, Inc.**

**NON-COLLUSION AFFIDAVIT**

**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT PRIOR TO SUBMITTING BID**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.**

**(See Electronic Signatures in Global and National Commerce Act for more information.)**

The undersigned, of lawful age, being duly sworn, upon oath, deposes and says: That the undersigned has the lawful authority to execute the within and foregoing proposal/bid for, and on behalf of, the Proposer/Bidder; that the Proposer/Bidder has not, directly or indirectly, entered into any agreement, express or implied, with any Proposer/Bidder, having for its object the controlling of the price or amount of such proposal/bid, the limiting of the proposals/bids or the Proposers/Bidders, the parceling or farming out to any Proposer/Bidder or other persons, of any part of the Agreement or any part of the subject matter of the proposal/bid, or of the profits thereof, and that Proposer/Bidder has not and will not divulge the sealed proposal/bid to any person whomsoever, except those having a partnership or other financial interest with the Proposer/Bidder in the said proposal/bid, until after the said sealed proposals/bids are opened.

The undersigned further states that the Proposer/Bidder has not been a party to any collusion: among Proposer/Bidders in restraint of freedom of competition, by any agreement to bid at a fixed price or to refrain from proposing; or with any City/Trust official, City/Trust employee or City/Trust agent as to the quantity, quality, or price in the prospective Agreement, or any other terms of the said prospective Agreement; or in any discussions between the Proposers/Bidders or City/Trust official, City/Trust employee or City/Trust agent concerning the exchange of money or other thing of value for special consideration in the letting of Agreement. The Proposer/Bidder states that it has not paid, given or donated or agreed to pay, give or donate to any City/Trust official, officer or employee of the City or awarding agency, any money or other thing of value, either directly or indirectly, in the procuring of the award of Agreement pursuant to this Proposal/Bid.

Witness the hands of the parties hereto:

**The undersigned states that the Proposer/Bidder will be bound by its proposal/bid, the specification, the terms and conditions of the Agreement, and the Requirements for Proposer/Bidders.**

**→ → THIS FORM TO BE COMPLETED BY THE PROPOSER/BIDDER PRIOR TO AGREEMENT APPROVAL ← ←**

**Randal K. Hunter**  
Type Name of Authorized Agent/Representative  
**Hunter Mechanical & Controls**  
Company Name  
**5305 N Santa Fe Ave**  
Address  
**405-525-2116/405-525-2126**  
Telephone Number and Fax Number, if any

**Owner**  
Title  
**73118**  
Zip Code

**TO BE COMPLETED BY THE NOTARY:**

State of \* )  
**Oklahoma** ) SSS  
County of \* )  
**Oklahoma**

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# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
05/19/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Sterling Management Group 2901 NW 156th Street Edmond OK 73013		<b>CONTACT NAME:</b> Suzy Smith <b>PHONE (A/C, No, Ext):</b> (405) 530-4015 <b>E-MAIL ADDRESS:</b> suzysmith@loftiswetzell.com		<b>FAX (A/C, No):</b> (405) 530-4038	
		<b>INSURER(S) AFFORDING COVERAGE</b>			<b>NAIC #</b>
		<b>INSURER A:</b> Phoenix Insurance Co			25623
		<b>INSURER B:</b> Travelers Property Casualty			36161
		<b>INSURER C:</b> Travelers Indemnity Co			25658
		<b>INSURER D:</b>			
		<b>INSURER E:</b>			
		<b>INSURER F:</b>			
<b>INSURED</b> Hunter Mechanical & Controls Inc 5305 N Santa Fe Oklahoma City OK 73118					

**COVERAGES**      **CERTIFICATE NUMBER:** 22-23 gl,au,umb,wc,eq      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	Y		CO-9J853808	11/01/2022	11/01/2023	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 300,000
							MED EXP (Any one person)	\$ 10,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 2,000,000
							PRODUCTS - COMP/OP AGG	\$ 2,000,000
								\$
A	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	Y		810-9J828977	11/01/2022	11/01/2023	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$
							BODILY INJURY (Per accident)	\$
							PROPERTY DAMAGE (Per accident)	\$
							Uninsured motorist	\$ 1,000,000
B	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			CUP-9J878711	11/01/2022	11/01/2023	COMBINED SINGLE LIMIT EACH OCCURRENCE	\$ 3,000,000
							AGGREGATE	\$ 3,000,000
							follow form basis for liab	\$
C	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N Y	N/A	UB-9J851342	11/01/2022	11/01/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER	
							E.L. EACH ACCIDENT	\$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	\$ 1,000,000
A	Installation Rented or leased equipment			CO-9J853808	11/01/2022	11/01/2023	Installation	500,000
							Rented or leased equip.	200,000
							Deductible	1,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Contract #C246032  
The City of Oklahoma City and its Trusts are shown as additional insured as regards general liability, auto liability and excess liability

### CERTIFICATE HOLDER

### CANCELLATION

City of Oklahoma City and its Trusts 100 N Walker Suite 200  Oklahoma City OK 73102	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE  
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**Supplier: Hunter Mechanical & Controls, Inc.**

**BIDDER MUST ELECTRONICALLY COMPLETE THIS FORM PRIOR TO SUBMITTING BID**

**SUPPLIER CONTACT INFORMATION**

The purpose of this form is to assist various City Departments and Trusts with placing orders.

**Sales Contact:**

Company Name: **Hunter Mechanical & Controls, Inc.**

Address: **5305 N. Santa Fe Avenue, Oklahoma City, OK 73118**

Contact Person: **Brian Hall** Email Address: **brian@huntermechanical.com**

Telephone Number: **405-525-2110** Fax Number: **405-525-2126**

**Billing Contact:**

Company Name: **Hunter Mechanical & Controls, Inc.**

Address: **5305 N. Santa Fe Avenue, Oklahoma City, OK 73118**

Contact Person: **Danielle Clark** Email Address: **danielle@huntermechanical.com**

Telephone Number: **405-525-2110** Fax Number: **405-525-2126**

**Service Contact:**

Company Name: **Hunter Mechanical & Controls, Inc.**

Address: **5305 N. Santa Fe Avenue, Oklahoma City, OK 73118**

Contact Person: **Danielle Clark** Email Address: **danielle@huntermechanical.com**

Telephone Number: **405-525-2110** Fax Number: **405-525-2126**

After Hours Emergency Number(s) **405-525-2110**

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## Hunter Mechanical & Controls, Inc.

Bid Contact **Randy Hunter**  
**randy@huntermechanical.com**  
**Ph 405-525-2110**

Address **5305 N. Santa Fe Avenue**  
**Oklahoma City, OK 73118**

Qualifications **OKC PRE-QUALIFIED CONTRACTORS**

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch. Docs
24613--01-01	Chiller Repair, Replacement or Installation: Regular Hour Labor Charge per Hour	<b>Supplier Product Code:</b>	<b>First Offer - \$100.00</b>	1 / hour	<b>\$100.00</b> Y
24613--01-02	Chiller Repair, Replacement or Installation: Overtime Hour Labor Charge per Hour	<b>Supplier Product Code:</b>	<b>First Offer - \$150.00</b>	1 / hour	<b>\$150.00</b> Y
24613--01-03	Chiller Repair, Replacement or Installation: Markup on Materials over Contractor's Cost	<b>Supplier Product Code:</b>	<b>First Offer - 20.00%</b>	1 / each	<b>20.00%</b> Y
24613--01-04	Chiller Repair, Replacement or Installation: Service Call Hourly Rate	<b>Supplier Product Code:</b>	<b>First Offer - \$110.00</b>	1 / hour	<b>\$110.00</b> Y
Lot Total					<b>\$360.00</b>

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch. Docs
24613--02-01	Air Conditioning and Heating Services and Repairs: Regular Hour Labor Charge per Hour	<b>Supplier Product Code:</b>	<b>First Offer - \$110.00</b>	1 / hour	<b>\$110.00</b> Y
24613--02-02	Air Conditioning and Heating Services and Repairs: Overtime Hour Labor Charge per Hour	<b>Supplier Product Code:</b>	<b>First Offer - \$165.00</b>	1 / hour	<b>\$165.00</b> Y
24613--02-03	Air Conditioning and Heating Services and Repairs: Markup on Materials over Contractor's Cost	<b>Supplier Product Code:</b>	<b>First Offer - 20.00%</b>	1 / each	<b>20.00%</b> Y
24613--02-04	Air Conditioning and Heating Services and Repairs: Service Call Hourly Rate	<b>Supplier Product Code:</b>	<b>First Offer - \$110.00</b>	1 / hour	<b>\$110.00</b> Y
Lot Total					<b>\$385.00</b>

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch. Docs
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24613--03-01	Air Conditioning and Heating Units and Installation: Regular Hour Labor Charge per Hour	<b>Supplier Product Code:</b>	<b>First Offer - \$110.00</b>	1 / hour	<b>\$110.00</b>	<b>Y</b>
24613--03-02	Air Conditioning and Heating Units and Installation: Overtime Hour Labor Charge per Hour	<b>Supplier Product Code:</b>	<b>First Offer - \$165.00</b>	1 / hour	<b>\$165.00</b>	<b>Y</b>
24613--03-03	Air Conditioning and Heating Units and Installation: Markup on Materials over Contractor's Cost	<b>Supplier Product Code:</b>	<b>First Offer - 20.00%</b>	1 / each	<b>20.00%</b>	<b>Y</b>
24613--03-04	Air Conditioning and Heating Units and Installation: Service Call Hourly Rate	<b>Supplier Product Code:</b>	<b>First Offer - \$110.00</b>	1 / hour	<b>\$110.00</b>	<b>Y</b>

				Lot Total	<b>\$385.00</b>	
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Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs
24613--04-01	Manufacturer's Factory Training: Factory Training	<b>Supplier Product Code:</b>	<b>First Offer -</b>	1 / each	<b>Y</b>	<b>Y</b>

				Lot Total	<b>\$0.00</b>	
Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs

24613--05-01	Manufacturer's Teardown Manuals: Teardown Manuals	<b>Supplier Product Code:</b>	<b>First Offer -</b>	1 / each	<b>Y</b>	<b>Y</b>
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				Lot Total	<b>\$0.00</b>	
Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs

24613--06-01	Attachments: Bidder's Current W-9	<b>Supplier Product Code:</b>	<b>First Offer -</b>	1 / each	<b>Y</b>	<b>Y</b>
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				Lot Total	<b>\$0.00</b>	
				Supplier Total	<b>\$1,130.00</b>	

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**Hunter Mechanical & Controls, Inc.**

Item: **Manufacturer's Factory Training:Factory Training**

**Attachments**

Brent Certificates.pdf

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Johnson  
Controls



# YK High Pressure Centrifugal Operations/Maintenance

2.0 CEU

Awarded to  
*Brent Luke*

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*Don Arway*

Course Administrator

*Tom [Signature]*

Manager, Talent Development

6/12/15 – 6/12/15

Date



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Entech Sales and Service, Inc.

Certifies that

*Brent Luke*

Has completed

40 Hours of Continuing Education

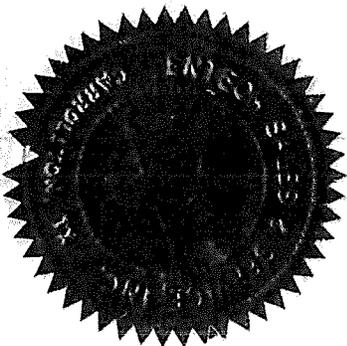
Trane Centrifugal Teardown Training

*John P. Mattes*

John P. Mattes

V.P.

February 19<sup>th</sup> 2016



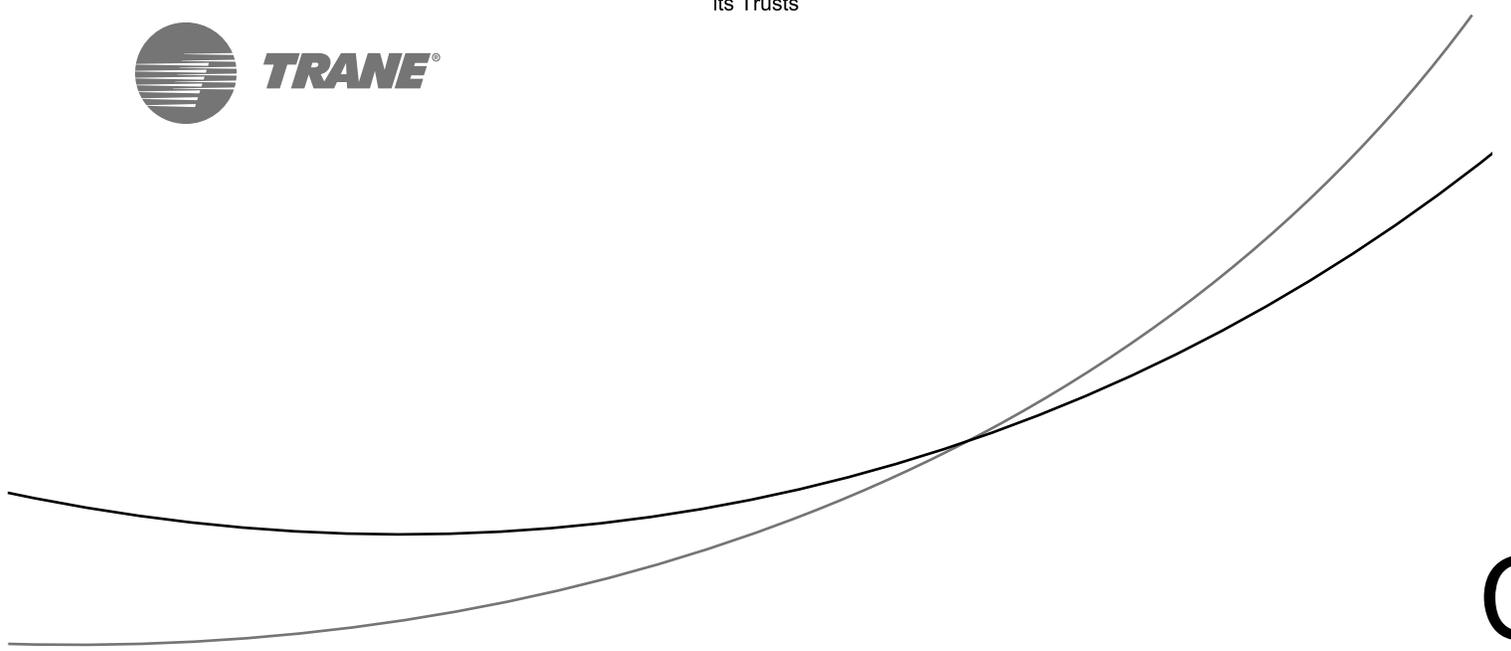
**Hunter Mechanical & Controls, Inc.**

Item: **Manufacturer's Teardown Manuals:Manufacturer's Teardown Manuals:Teardown Manuals**

**Attachments**

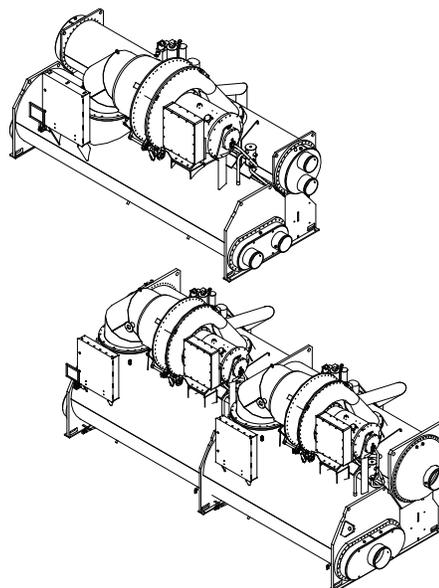
CVHE-SVN04M-EN\_01102019.pdf

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## Disassembly and Reassembly Units Water-Cooled CenTraVac™ Chillers

50 Hz Models: CDHG, CVHE, CVHG  
60 Hz Models: CDHF, CVHE, CVHF



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X39640718110

### ▲ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

January 2019

CVHE-SVN04M-EN





# Introduction

Read this manual thoroughly before operating or servicing this unit.

## Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

**⚠️ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠️ CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

**NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

## Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

## Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

**⚠️ WARNING**

**Proper Field Wiring and Grounding Required!**

Failure to follow code could result in death or serious injury.

All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

**⚠️ WARNING**

**Personal Protective Equipment (PPE) Required!**

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate MSDS/SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

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## Introduction

### **⚠ WARNING**

#### **Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Ingersoll Rand personnel must follow Ingersoll Rand Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. All policies can be found on the BOS site. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Ingersoll Rand personnel should always follow local regulations.

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## Trademarks

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## Revision History

- Update to Figure 1, p. 10
- Update to Figure 2, p. 11

## Factory Warranty Information

Compliance with the following is required to preserve the factory warranty:

### **All Unit Installations**

Startup MUST be performed by Trane, or an authorized agent of Trane, to VALIDATE this WARRANTY. Contractor must provide a two-week startup notification to Trane (or an agent of Trane specifically authorized to perform startup).

### **Additional Requirements for Units Requiring Disassembly and Reassembly**

When a new chiller is shipped and received from our Trane manufacturing location and, for any reason, it requires disassembly or partial disassembly, and reassembly— which could include but is not limited to the evaporator, condenser, control panel, compressor/motor, economizer, purge, factory-mounted starter or any other components originally attached to the fully assembled unit— compliance with the following is required to preserve the factory warranty:

- Trane, or an agent of Trane specifically authorized to perform start-up and warranty of Trane® products, will perform or have direct on-site technical supervision of the disassembly and reassembly work.
- The installing contractor must notify Trane—or an agent of Trane specifically authorized to perform startup and warranty of Trane® products—two weeks in advance of the scheduled disassembly work to coordinate the disassembly and reassembly work.
- Start-up must be performed by Trane or an agent of Trane specifically authorized to perform startup and warranty of Trane® products.

Trane, or an agent of Trane specifically authorized to perform start-up and warranty of Trane® products, will provide qualified personnel and standard hand tools to perform the disassembly and reassembly work at a location specified by the contractor. The contractor shall provide the rigging equipment such as chain falls, gantries, cranes, forklifts, etc. necessary for the disassembly and reassembly work and the required qualified personnel to operate the necessary rigging equipment.

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# General Information

**⚠ WARNING**

**Refrigerant May Be Under Positive Pressure!**

Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage.

System contains refrigerant and may be under positive pressure; system may also contain oil. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or non-approved refrigerant additives.

**NOTICE**

**Equipment Damage!**

Mixing refrigerants or oils could result in equipment damage including bearing damage, introduction of acids into the chiller, or continuous purge pump-out in high-head/high ambient applications.

CenTraVac chillers are manufactured with different refrigerant/oil systems: 1) chillers using R-123 refrigerant and OIL00022 compressor oil, and 2) chillers using R-514A refrigerant and OIL00334/OIL00335 compressor oil.

Verify proper refrigerant and oil for your chiller and do NOT mix refrigerants or oils!

This *Installation, Operation, and Maintenance* manual applies to CenTraVac™ chillers with two different refrigerant and oil systems:

- R-123 and OIL00022
- R-514A and OIL00334/OIL00335

**Important:** *Verify proper refrigerant and oil for your chiller before proceeding!*

The information and procedures in this document are to facilitate unit disassembly *for clearance and access reasons during the installation process.*

The understanding is that the chiller has what is referred to as the “*compressor doweling option*” or “*separable shell option*” (which includes compressor doweling). Compressor doweling sets up the compressor for removal. The separable shell option includes a bolt together design between the evaporator and condenser and allows the shells to be separated in the field.

**Important:** *These procedures do NOT apply to units that have been installed and electrical supply wiring has been completed.*

# Contractor Responsibilities

**⚠ WARNING**

**Heavy Objects!**

Failure to follow instructions below could result in component dropping which could result in death or serious injury, and equipment or property-only damage.

Loads can shift and become off-center during shipping. Ensure that components are centered before lifting and always test lift each component to verify center of gravity using lifting equipment rated for the task. Only experienced riggers should perform unit disassembly/reassembly.

- Handle/lift and rig equipment
- Protect all internal components from exposure to elements, which could contaminate or corrode chiller components
- Chiller reassembly
- Replace all gaskets with new gaskets or O-rings and sealing compound; the contractor should assist a qualified Trane Technician with this responsibility

**NOTICE**

**Compressor Damage!**

POE oil is hygroscopic – it absorbs water directly from the air. This water is nearly impossible to remove from the compressor oil and can result in compressor failures.

To prevent POE oil from absorbing water, the system should not remain open for longer than necessary. When open, dry nitrogen should flow through the piping. Only new oil containers should be used for service and maintenance. Always use the smallest container size required for the job requirements. Always leave the oil container tightly sealed until time of use. Do not reuse oil that has been opened.

- Change the compressor oil; the contractor should assist a qualified Trane Technician with this responsibility
- Evacuate the chiller under 1000 microns; the contractor should assist a qualified Trane Technician with this responsibility
- Recharge the chiller with dry nitrogen to 5 psig; the contractor should assist a qualified Trane Technician with this responsibility
- Replace and/or repair insulation
- Reconnect electrical connections
- Spot paint the chiller if necessary

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**General Information**

**Metric Conversions**

English	Metric
ft·lb x 1.3558	Newton-meter
lb x 0.4536	kg
in x 25.4000	mm

**Device Descriptions**

Device	Description
CPTF	Optional control power transformer (INDP units only)
FRCL	Optional free cooling
HGBP	Optional hot gas bypass
INDP	Optional industrial control package
SMP	Optional supplemental motor protection (INDP units only)
UAFD	Unit-mounted Adaptive Frequency™ drive
UATR	Unit-mounted medium-voltage auto transformer
UPIR	Unit-mounted medium-voltage primary reactor
UXL	Unit-mounted medium-voltage across-the-line starter
USID	Unit-mounted low-voltage solid state starter
USTR	Unit-mounted low-voltage wye-delta starter

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# Dimensions and Weights

## Dimensions

### Single Compressor Chillers: Models CVHE, CVHF, and CVHG

The following table shows dimensional data for Figure 1, p. 10 and Figure 2, p. 11.

**Table 1. Dimensional data for CVHE, CVHF, and CVHG GenTraVac chillers**

Model	NTON	Shell Size	Comp Size	A	B	C	D	E	F	G	H	J	K	L	M
CVHE	190-270	032	320	66.7	53.1	N/A	N/A	84.9	49.2	49.7	70.8	45.5	53.1	37.9	34.5
	230-320	050	320	75.4	53.6	N/A	N/A	73.4	49.2	52.4	77.1	45.5	52.5	43.9	38.7
	300-420	050	500	73.7	52.7	N/A	N/A	87.8	51.7	54.4	77.1	45.5	52.5	42.3	38.7
	360-500	080	500	93.5	77.1	101.3	42.0	87.8	51.7	58.6	93.8	45.5	62.2	63.5	44.3
	300-450	050/080	500	84.1	66.0	90.4	42.0	87.8	51.7	58.6	82.7	46.0	54.9	49.32	41.3
CVHF	350-570	050	480	75.4	52.7	N/A	N/A	78.3	51.3	54.4	77.1	45.5	52.5	43.9	38.7
		050/080	480	84.1	64.6	90.4	42.0	78.3	51.3	59.1	82.7	46.0	54.9	49.32	41.3
		080	480	93.5	75.7	101.3	42.0	78.3	51.3	59.1	93.8	45.5	62.2	63.5	44.3
	620-870	080	870	93.5	75.0	101.3	42.0	81.2	59.7	73.2	93.8	45.5	63.9	63.5	44.3
		080/142	870	101.3	79.4	107.5	(a)	81.3	59.7	73.2	102.0	45.5	67.9	63.59	46.0
		142	870	98.1	80.4	121.9	(a)	81.2	59.7	73.2	110.9	46.9	65.4	62.5	50.5
	650-910	080	910	93.5 <sup>(b)</sup>	76.5	101.3	42.0	81.2	54.6	66.7	93.8	45.5	63.9	63.5	44.3
		080/142	910	101.3	79.4	107.5	(a)	81.3	54.6	66.7	102.0	45.5	64.6	63.59	46.0
		142	910	98.1	83.0	111.0	(a)	81.2	54.6	66.7	105.5	46.9	69.8	62.5	46.0
	1070-1300	080/142	1300	102.2	80.5	107.5	(a)	80.5	59.1	72.4	102.0	45.5	65.7	63.59	46.0
		142	1300	120.9	80.4	121.9	(a)	80.2	54.6	72.6	110.9	46.9	64.2	76.5	50.5
		142/210	1300	106.0	88.2	109.7	(a)	80.5	59.1	72.4	105.4	46.9	73.1	62.5	52.4
		210	1300	106.5	94.5	116.0	(a)	80.2	59.7	72.6	116.4	50.5	84.5	68.2	50.5
		250	1300	120.9	98.6	121.9	(a)	80.2	59.7	72.6	116.4	54.5	84.5	76.7	56.6
	1470-1720	142/210	1720	106.0	86.5	109.7	(a)	93.8	63.1	75.6	105.4	46.9	73.1	62.5	52.4
210		1720	106.5	92.8	116.0	(a)	91.2	63.1	75.6	110.9	50.5	78.2	68.2	50.5	
250		1720	120.9	96.9	121.9	(a)	91.2	63.1	75.6	116.4	54.5	84.4	76.7	56.6	

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Dimensions and Weights

**Table 1. Dimensional data for CVHE, CVHF, and CVHG CenTraVac chillers (continued)**

Model	NTON	Shell Size	Comp Size	A	B	C	D	E	F	G	H	J	K	L	M
CVHG	480-565	050	565	75.4	52.6	N/A	N/A	93.8	53.0	57.5	77.1	45.5	52.5	43.9	38.7
		080	565	93.5	74.6	101.3	42.0	94.3	53.0	62.8	93.8	45.5	62.2	63.5	44.3
		050/080	565	82.6(c)	63.4	90.2	42.0	94.5	52.9	62.8	82.7	46.0	57.6	49.32	40.0
	670-780	080	780	93.5	76.5	101.3	42.0	94.0	54.3	66.6	93.8	45.5	63.9	63.5	44.3
		080/142	780	101.3	79.4	107.5	(a)	91.9	54.3	66.6	102.0	45.5	66.8	63.59	46.0
		142	780	98.1	83.0	111.0	(a)	94.0	54.3	66.6	105.5	46.9	69.8	62.5	46.0
	920-1067	080/142	920	102.2	82.0	107.5	(a)	90.9	54.6	68.7	102.0	45.5	64.3	63.59	46.0
		142	920	98.1	84.0	111.0	(a)	93.2	54.3	68.0	105.5	46.9	69.8	62.5	46.0
		142/210	920	106.0	89.7	109.7	(a)	93.3	54.6	68.7	105.4	46.9	76.2	62.5	52.4
		210	920	106.5	96.0	116.0	(a)	93.2	54.3	68.0	110.9	50.5	81.5	68.2	50.5
	1100	080/142	1100	102.2	80.5	107.5	(a)	93.2	59.1	72.4	102.0	45.5	65.7	63.59	46.0
		142	1100	98.8	80.4	107.4	(a)	93.2	59.7	71.8	101.9	46.9	62.0	62.3	46.0
		142/210	1100	106.0	88.2	109.7	(a)	93.2	59.1	72.4	105.4	46.9	76.2	62.5	52.4
		210	1100	106.5	94.5	116.0	(a)	93.2	59.7	72.6	110.9	50.5	78.2	68.2	50.5

**Note:** All dimensions are in inches (±0.5 inch).

- (a) Does not extend beyond the condenser tube unit.
- (b) Add 1 in. to overall width for compressor.
- (c) Add 0.4 in. to overall width for compressor.

The following table shows dimensional data for Figure 1, p. 10 and Figure 2, p. 11.

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**Dimensions and Weights**

**Table 2. Dimensional data for CVHE, CVHF, and CVHG CenTraVac chillers**

Model	NTON	Shell Size	Comp Size	N	Std	Exp	R	S	T	U	V	Short	Long	X
					P							W		
CVHE	190-270	032	320	60.1	71.4	81.9	29.7	17.0	26.5	68.6	93.9	47.0	47.0	N/A
	230-320	050	320	64.6	71.4	81.9	29.7	17.0	23.4	80.5	98.4	63.4	54.9	N/A
	300-420	050	500	62.8	71.4	81.9	29.8	17.3	26.5	80.5	98.7	63.4	54.9	N/A
	360-500	080	500	79.0	71.4	81.9	29.8	17.3	26.5	97.1	114.9	80.8	80.8	66.3
	300-450	050/080	500	68.1	71.8	82.3	29.0	16.3	26.5	90.1	103.8	N/A	N/A	N/A
CVHF	350-570	050	480	64.3	71.4	81.9	29.0	16.3	26.5	80.5	100.0	60.7	54.9	N/A
		050/080	480	68.1	71.8	82.3	29.0	16.3	26.5	90.1	103.7	N/A	N/A	N/A
		080	480	79.0	71.4	81.9	29.0	16.3	26.5	97.1	114.9	75.0	75.0	66.3
	620-870	080	870	75.7	71.4	81.9	30.5	17.8	29.0	97.1	117.1	82.4	82.4	63.9
		080/142	870	79.0	71.3	81.8	N/A	18.5	29.0	120.9	121.6	N/A	N/A	72.7
		142	870	93.8	72.8	83.3	30.5	17.8	29.0	117.4	121.5	82.4	82.4	72.7
	650-910	080	910	75.7	71.4	81.9	30.5	17.8	29.0	97.1	114.9	82.4	82.4	63.9
		080/142	910	79.0	71.3	81.8	N/A	18.5	29.0	120.9	117.8	N/A	N/A	72.7
		142	910	82.1	72.8	83.3	30.5	17.8	29.0	115.4	121.3	84.4	84.4	72.7
	1070-1300	080/142	1300	80.5	71.3	81.8	N/A	18.6	36.8	121.8	121.6	N/A	N/A	72.7
		142	1300	93.8	72.8	83.3	N/A	21.1	36.8	117.4	121.5	78.1	78.1	72.7
		142/210	1300	87.7	72.8	83.3	N/A	21.1	36.8	126.9	129.0	N/A	N/A	72.7
		210	1300	93.8	76.4	86.9	N/A	21.1	36.8	124.7	135.2	87.2	87.2	82.4
		250	1300	97.9	80.4	90.9	N/A	18.6	36.8	137.2	139.4	N/A	N/A	82.7
	1470-1720	142/210	1720	86.5	72.8	83.3	N/A	25.8	36.8	126.9	130.9	N/A	N/A	72.7
210		1720	92.6	76.4	86.9	N/A	25.8	33.3	124.7	137.2	92.9	92.9	76.4	
250		1720	96.8	80.4	90.9	N/A	23.3	33.3	137.2	141.4	N/A	N/A	82.7	
CVHG	480-565	050	565	66.4	71.4	81.9	32.4	19.9	26.5	80.5	103.0	63.4	54.9	N/A
		080	565	68.4	71.8	82.3	32.4	19.9	29.0	91.4	104.7	N/A	N/A	N/A
		050/080	565	79.2	71.4	81.9	33.6	21.2	29.0	98.1	115.8	81.7	81.7	N/A
	670-780	080	780	75.7	71.4	81.9	33.5	21.1	32.8	98.1	114.7	82.4	82.4	N/A
		080/142	780	79.0	71.3	81.8	N/A	18.5	32.8	120.9	117.6	N/A	N/A	72.7
	920-1067	142	780	82.1	72.8	83.3	27.8	17.8	32.8	115.4	121.2	84.4	84.4	N/A
		080/142	920	80.5	71.3	81.8	N/A	18.6	36.8	121.8	119.4	N/A	N/A	72.7
		142	920	82.1	72.8	83.3	28.0	18.0	36.8	115.4	121.2	84.4	84.4	N/A
		142/210	920	87.7	72.8	83.3	N/A	21.3	36.8	126.9	126.7	N/A	N/A	72.7
	1100	210	920	93.8	76.4	86.9	33.7	21.3	36.8	124.7	132.8	92.9	92.9	N/A
080/142		1100	80.5	71.3	81.8	N/A	18.6	36.8	121.8	121.6	N/A	N/A	72.7	
142		1100	80.1	72.8	83.3	28.0	18.0	36.8	117.4	121.5	78.1	78.1	72.7	
142/210		1100	87.7	72.8	83.3	N/A	21.3	36.8	126.9	129.0	N/A	N/A	72.7	
		210	1100	93.8	76.4	86.9	33.7	21.3	36.8	124.7	135.2	87.2	87.2	82.4

**Note:** All dimensions are in inches (±0.5 inch).

The following table shows dimensional data for Figure 1, p. 10 and Figure 2, p. 11.

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Dimensions and Weights

Table 3. Dimensional data for CVHE, CVHF and CVHG CenTraVac chillers

Model	NTON	Shell Size	Comp Size	USID USTR	UATR UPIR UXL	USID USTR	UATR UPIR UXL	AFDE UAFD					
								405-608A			900-1210A		
								Y1	Y2	AD	Y1	Y2	AD
CVHE	190-270	032	320	79.8	N/A	49.1	N/A	94.9	64.2	N/A	N/A	N/A	N/A
	230-320	050	320	94.1	N/A	57.5	N/A	101.2	64.6	N/A	N/A	N/A	N/A
	300-420	050	500	92.5	N/A	55.9	N/A	101.2	64.6	N/A	N/A	N/A	N/A
	360-500	080	500	(a)	(a)	(a)	(a)	110.6	77.0	N/A	N/A	N/A	N/A
	300-450	050/080	500	(a)	(a)	(a)	(a)	111.5	70.63	N/A	N/A	N/A	N/A
CVHF	350-570	050	480	92.7	N/A	56.1	N/A	101.2	64.6	N/A	N/A	N/A	N/A
		050/080	480	(a)	(a)	(a)	(a)	111.5	70.63	N/A	N/A	N/A	N/A
		080	480	(a)	(a)	(a)	(a)	110.6	77.0	N/A	N/A	N/A	N/A
	620-870	080	870	(a)	(a)	(a)	(a)	125.8	92.2	7.0	133.3	99.8	4.8
		080/142	870	(a)	(a)	(a)	(a)	140.0	81.75	N/A	147.0	88.8	5.8
		142	870	(a)	(a)	(a)	(a)	139.9	77.5	N/A	144.0	91.0	4.6
	650-910	080	910	(a)	(a)	(a)	(a)	119.3	85.7	N/A	126.8	93.3	4.8
		080/142	910	(a)	(a)	(a)	(a)	132.7	75.33	N/A	146.2	88.8	5.8
		142	910	(a)	(a)	(a)	(a)	130.4	77.5	N/A	144.0	91.0	4.6
	1070-1300	080/142	1300	(a)	(a)	(a)	(a)	140.0	81.75	N/A	147.0	88.8	6.3
		142	1300	(a)	(a)	(a)	(a)	139.9	77.5	N/A	146.0	91.0	4.6
		142/210	1300	(a)	(a)	(a)	(a)	147.9	83.6	3.5	154.9	90.6	5.6
		210	1300	(a)	(a)	(a)	(a)	N/A	N/A	N/A	152.4	95.9	3.9
		250	1300	140.7	(b)	80.2	(a)	N/A	N/A	N/A	160.0	99.5	3.1
	1470-1720	142/210	1720	(a)	(a)	(a)	(a)	N/A	N/A	N/A	155.0	90.7	5.6
210		1720	(a)	(a)	(a)	(a)	N/A	N/A	N/A	152.4	95.9	3.9	
250		1720	140.7	(a)	80.2	(a)	N/A	N/A	N/A	160.0	99.5	3.1	
CVHG	480-565	050	565	93.3	N/A	56.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		080	565	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		050/080	565	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
	670-780	080	780	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		080/142	780	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		142	780	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
	920-1067	080/142	920	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		142	920	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		142/210	920	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		210	920	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
	1100	080/142	1100	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
		142	1100	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A
142/210		1100	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A	
210		1100	(a)	(a)	(a)	(a)	N/A	N/A	N/A	N/A	N/A	N/A	

Notes:

1. Refer to Table 5, p. 13.
2. All dimensions are in inches (±0.5 inch).

(a) When indicated, see Note 1 (above).  
(b) Does not extend beyond the main unit control panel.

See Table 1, p. 6 through for dimensional data regarding the following figure.

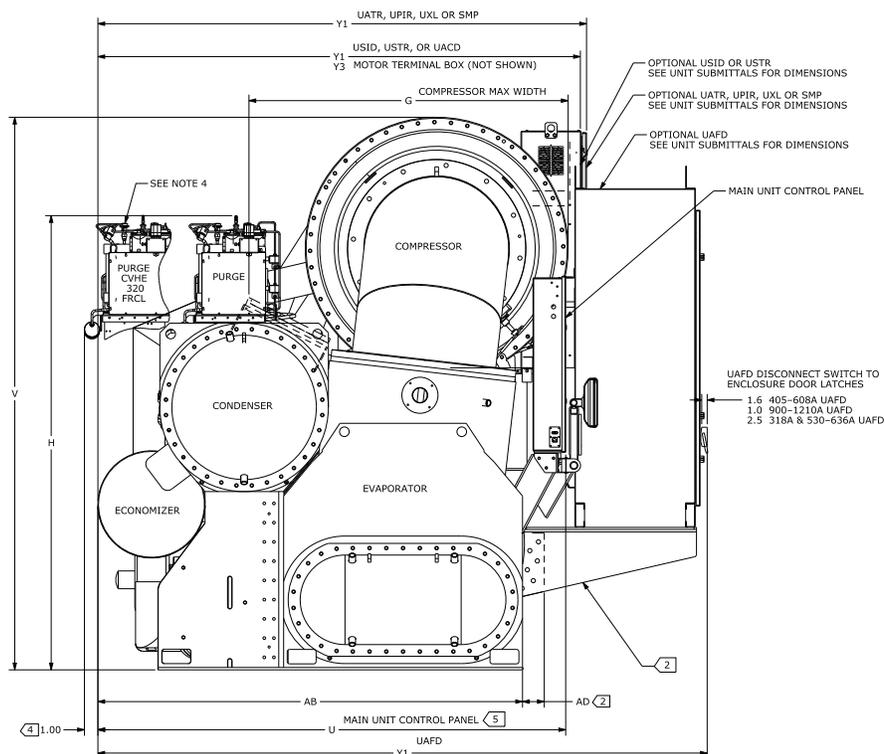
CVHE-SVN04M-EN

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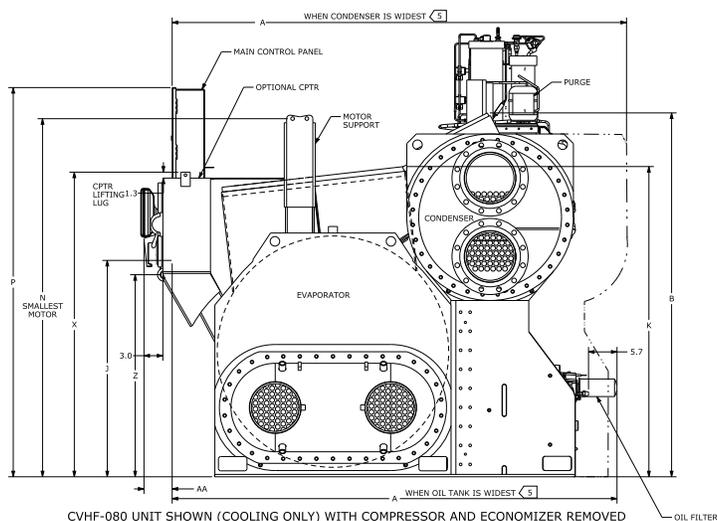
# Dimensions and Weights

Figure 1. Assembly for CVHE, CVHF, and CVHG CenTraVac chillers



**Notes:**

1. All dimensions are in inches ( $\pm 0.5$  inch). See Table 1, p. 6 through Table 5, p. 13 for dimension tables.
2. UAFD brackets and supports shown are bolt-on and removable. Most brackets and supports on 405-608A UAFD are welded on and non-removable. See Table 5, p. 13 for applicable dimensions.
3. Applies only to CVHE 190-320 NTON on 032 shells with free-cooling option.
4. Add 1.5 inch for distance to Tracer AdaptiView™ display mounting arm in stowed position.



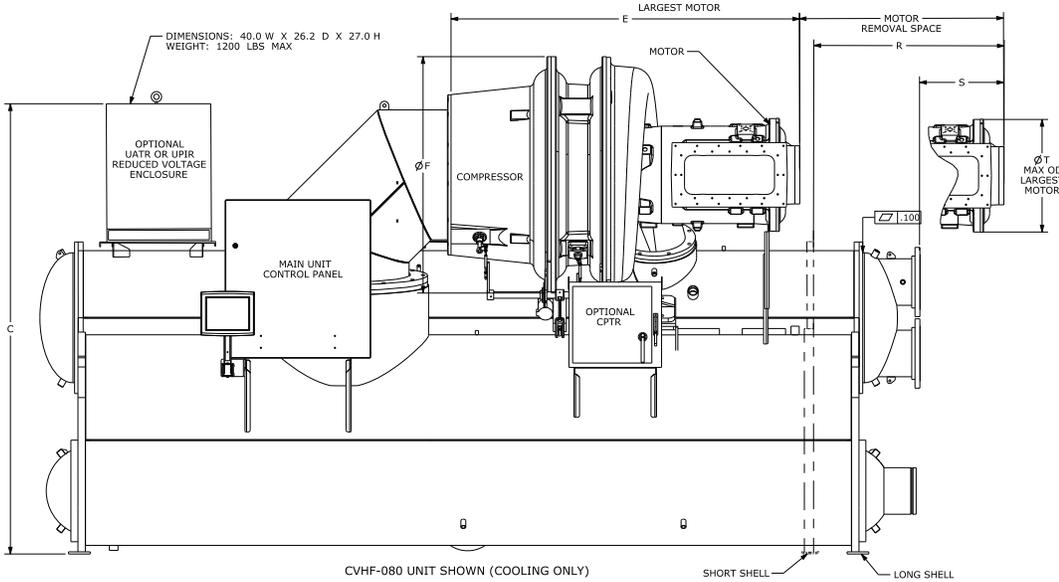
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Dimensions and Weights

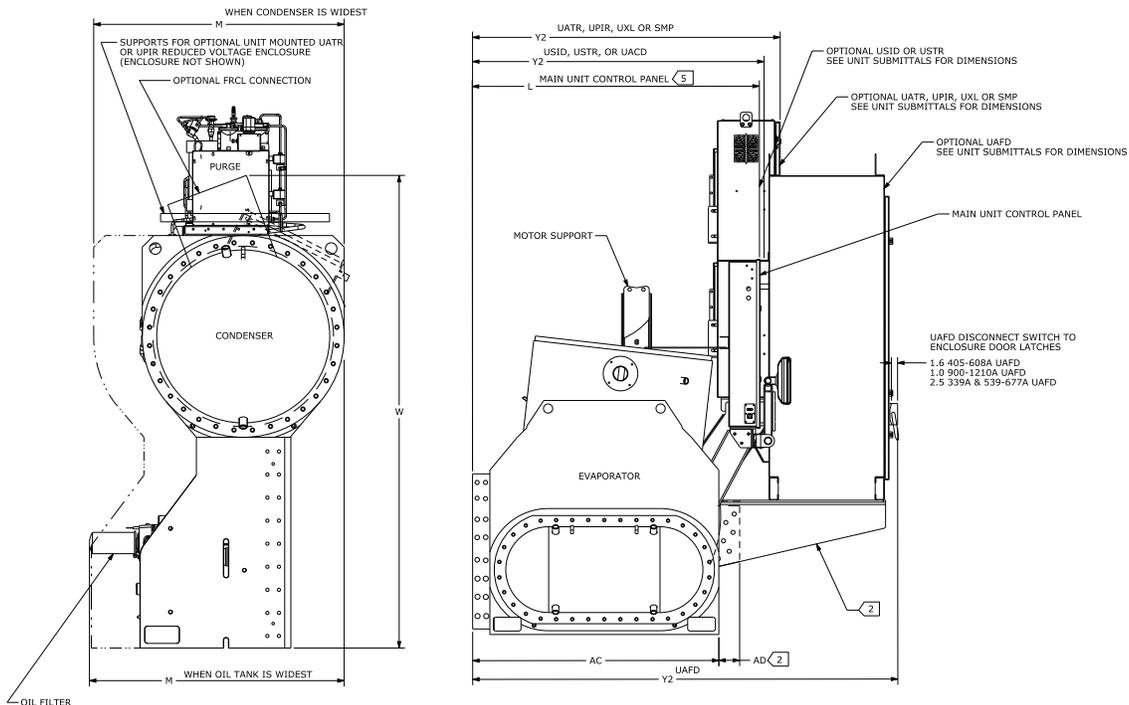
See Table 1, p. 6 through for dimensional data for the following figure.

Figure 2. Assembly for CVHE, CVHF, and CVHG CenTraVac chillers (CVHF-080 shown)



Notes:

1. All dimensions are in inches ( $\pm 0.5$  inch). See Table 1, p. 6 through Table 5, p. 13 for dimension tables.
2. UAFD brackets and supports shown are bolt-on and removable. Most brackets and supports on 405–608A UAFD are welded on and non-removable. See Table 5, p. 13 for application dimensions.
3. Applies only to CVHE 190–320 NTON on 032 shells with free-cooling option.
4. Add 1.5 inch for distance to Tracer Adaptiview™ display mounting arm in stowed position.



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### Dimensions and Weights

**Table 4. Motor terminal boxes for CVHE, CVHF, and CVHG CenTraVac chillers**

Shell Size	Comp Size	Motor Size	Low Voltage		Medium Voltage	
			Std	INDP	Std	INDP
			Y3		Y3	
032	320	360	(a)	N/A	N/A	N/A
		400	(a)	N/A	N/A	N/A
		440E	N/A	N/A	78.1	N/A
050	320	360	(a)	N/A	N/A	N/A
		400	(a)	N/A	N/A	N/A
	480	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	87.9	N/A
	500	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	87.7	N/A
	565	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	88.5	N/A
080	480 500	400	(a)	(a)	N/A	N/A
		440E	(a)	(a)	(a)	(a)
	565	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	100.8	N/A
		5000	(a)	N/A	102.3	N/A
	780	440E	(a)	N/A	106.9	N/A
		5000	(a)	N/A	108.4	N/A
		5800	100.2	N/A	110.2	N/A
	870 910	440E	(a)	(a)	105.9	106.1
		5000	(a)	(a)	107.4	107.6
050/080	480	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	97.2	N/A
	500	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	97.2	N/A
	565	400	(a)	N/A	N/A	N/A
		440E	(a)	N/A	100.9	N/A
		5000	92.4	N/A	102.4	N/A
080/142	780	440E	(a)	N/A	(a)	N/A
		5000	(a)	N/A	(a)	N/A
		5800	(a)	N/A	122.6	N/A
	910	440E	(a)	(a)	(a)	(a)
		5000	(a)	(a)	(a)	121.08
	920 1100	440E	(a)	N/A	(a)	N/A
		5000	(a)	N/A	(a)	N/A
		5800	(a)	N/A	123.4	N/A
	870 1300	440E	(a)	(a)	(a)	(a)
		5000	(a)	(a)	(a)	(a)
5800		(a)	(a)	123.4	123.7	

**Table 4. Motor terminal boxes for CVHE, CVHF, and CVHG CenTraVac chillers (continued)**

Shell Size	Comp Size	Motor Size	Low Voltage		Medium Voltage		
			Std	INDP	Std	INDP	
			Y3		Y3		
142	780 910 920	440E	(a)	(a)	(a)	(a)	
		5000	(a)	(a)	118.5	118.8	
		5800	(a)	(a)	120.3	120.6	
	870 1100 1300	440E	(a)	(a)	(a)	(a)	
		5000	(a)	(a)	120.5	120.8	
		5800	(a)	(a)	122.3	122.6	
142/210	920 1100	440E	(a)	N/A	128.2	N/A	
		5000	(a)	N/A	129.7	N/A	
		5800	(a)	N/A	131.5	N/A	
	1300	440E	(a)	(a)	128.2	128.3	
		5000	(a)	(a)	129.7	129.8	
		5800	(a)	(a)	131.5	131.6	
		6200	N/A	N/A	137.1	N/A	
		1300 1720	6800	N/A	N/A	137.1	N/A
			5000	(a)	(a)	(a)	(a)
	1720	5800	131.6	131.7	131.6	131.7	
		5800L	131.6	131.7	131.6	131.7	
		920 1100	440E	(a)	N/A	(a)	N/A
210	920 1100	5000	(a)	N/A	(a)	N/A	
		5800	(a)	N/A	127.8	N/A	
		440E	(a)	(a)	(a)	(a)	
	1300	5000	(a)	(a)	(a)	(a)	
		5800	(a)	(a)	127.8	128.1	
		5800L	(a)	(a)	127.8	128.1	
250	1300	5000	(a)	(a)	(a)	(a)	
		5800	(a)	(a)	(a)	(a)	
		5800L	(a)	(a)	(a)	(a)	
	1720	5000	(a)	(a)	(a)	(a)	
		5800	(a)	(a)	(a)	(a)	
		5800L	(a)	(a)	(a)	(a)	

**Note:** All dimensions are in inches (±0.5 inch).

(a) Does not extend beyond the main unit control panel.

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**Dimensions and Weights**

**Table 5. Unit mounted starters for CVHE, CVHF, and CVHG CenTraVac chillers**

Shell Size	Comp Size	Motor Size	USID, USTR	UATR, UPIR, UXL, SMP	USID, USTR	UATR, UPIR, UXL, SMP
			Y1		Y2	
080	480	400	103.3	N/A	69.7	N/A
		440E	(a)	100.7	(a)	67.1
	500	400	103.3	N/A	69.7	N/A
		440E	(a)	100.7	(a)	67.1
	565	400	103.7	N/A	70.1	N/A
		440E	(a)	102.0	(a)	68.4
		5000	96.8	103.5	63.2	69.9
	780	440E	101.3	108.0	67.8	74.4
		5000	102.8	108.7	69.3	75.1
		5800	104.6	111.3	71.0	77.7
	870	440E	107.8	114.5	74.3	80.9
		5000	109.3	116.0	75.8	82.4
910	440E	101.3	108.0	67.8	74.4	
	5000	102.8	109.5	69.3	75.9	
050/080	480	400	92.4	N/A	51.59	N/A
		440E	94.9	101.6	54.09	60.85
	500	400	92.4	N/A	51.59	N/A
		440E	94.9	101.6	54.09	60.85
	565	440E	96.2	103.0	54.09	60.85
		5000	97.7	104.3	55.59	62.19
080/142	780, 910	440E	(a)	121.2	(a)	63.89
		5000	(a)	122.9	(a)	65.54
	780	5800	(a)	124.5	(a)	67.19
	870, 920, 1100, 1300	440E	(a)	122.2	(a)	63.96
		5000	(a)	123.7	(a)	65.46
		5800	(a)	125.5	(a)	67.26
142	780, 910, 920	440E	(a)	119.1	(a)	66.2
		5000	(a)	120.6	(a)	67.7
		5800	(a)	122.4	(a)	69.5
	870, 1100, 1300	440E	(a)	121.1	(a)	66.2
		5000	(a)	122.6	(a)	67.7
		5800	(a)	124.4	(a)	69.5
142/210	920, 1100, 1300	440E	(a)	133.6	(a)	69.3
		5000	(a)	135.0	(a)	70.7
		5800	127.0	136.9	62.6	72.6
	1720	5000	131.2	141.1	66.8	76.8
		5800	127.0	136.9	62.6	72.6
		5800L	127.0	136.9	62.6	72.6

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## Dimensions and Weights

**Table 5. Unit mounted starters for CVHE, CVHF, and CVHG CenTraVac chillers (continued)**

Shell Size	Comp Size	Motor Size	USID, USTR	UATR, UPIR, UXL, SMP	USID, USTR	UATR, UPIR, UXL, SMP
			Y1		Y2	
210	920, 1100, 1300	440E	(a)	126.6	(a)	70.1
		5000	(a)	128.1	(a)	71.6
		5800	(a)	129.9	(a)	73.4
	1720	5000	127.4	134.1	70.9	77.6
		5800	(a)	129.9	(a)	73.4
		5800L	(a)	129.9	(a)	73.4

**Note:** All dimensions are in inches (±0.5 inch).

(a) Does not extend beyond the main unit control panel.

## Duplex Chillers: Models CDHF and CDHG

**Table 6. Dimensional data for CDHF and CDHG CenTraVac chillers**

Model	NTON	Shell Size	A	B	C	D	E	F	G	H	J	K	L	M	N
CDHF	1500-2000 (2-Comp)	2100	107.4	-0.2	108.2	66.6	78.5	54.3	116.0	110.9	50.2	81.0	68.9	50.5	94.2
	2170 & 2550 (2-Comp)	2500	120.9	0.5	121.6	73.2	81.8	59.7	120.6	116.4	54.5	87.6	76.9	56.8	97.8
CDHG	1250-1750 (2-Comp)	2100	107.4	-0.2	108.2	66.6	95.0	54.3	116.0	110.9	50.2	81.3	68.9	50.5	94.2
	2250 (2-Comp)	2100	110.5	2.7	111.3	73.2	94.2	59.7	116.0	110.9	50.5	74.7	71.9	52.4	93.8
	2250 (2-Comp)	2500	120.9	0.5	121.6	73.2	94.2	59.7	120.6	116.4	54.5	79.7	76.9	56.8	94.6
CDHF	3000 (2-Comp)	250M	120.9	0.5	121.6	76.3	92.3	63.1	120.6	116.4	54.5	84.3	76.9	56.8	96.8
	3500 (2-Comp)	250X	120.9	0.5	121.6	76.3	92.3	63.1	120.6	116.4	54.5	84.3	76.9	56.8	96.8

**Table 7. Dimensional data for CDHF and CDHG CenTraVac chillers**

Model	NTON	Shell Size	P	R	S	T	U	V	AFD 900-1210A		UAFD Low Mount Control Panel					
									W	X	Z	AA	BB	CC	DD	EE
CDHF	1500-2000 (2-Comp)	2100	86.9	51.3	45.0	28.5	124.7	132.8	152.4	24.3	135.5	118.2	10.6	119.0	9.2	79.7
	2170 & 2550 (2-Comp)	2500	90.9	57.5	46.0	36.8	137.2	139.3	160.0	20.2	147.2	130.9	10.5	131.6	13.5	86.9
CDHG	1250-1750 (2-Comp)	2100	86.9	51.3	45.0	32.4	124.7	132.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2250 (2-Comp)	2100	86.9	53.2	46.0	36.8	127.7	135.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CDHF	2250 (2-Comp)	2500	90.6	57.5	46.0	36.8	137.2	139.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3000 (2-Comp)	250M	90.9	57.5	37.0	33.3	137.2	141.3	160.0	20.2	147.2	130.9	10.5	131.6	13.5	86.9
	3500 (2-Comp)	250X	90.9	57.5	37.0	33.3	137.2	141.3	160.0	20.2	147.2	130.9	10.5	131.6	13.5	86.9

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**Dimensions and Weights**

**Table 8. Motor terminal boxes and unit mounted starters for CDHF and CDHG CenTraVac chillers**

Shell Size	Comp Size	Motor Size	Y1 USTR, USID	Y2 UATR, UPIR, UXL	Y3 LV Motor Terminal Box	Y3 MV Motor Terminal Box
2100	091	440E	9.7	11.4	-10.2	-0.2
		5000	9.7	12.9	-8.7	1.3
	078	440E	9.7	11.4	-10.2	-0.2
		5000	9.7	12.9	-8.7	1.3
	092 1100	440E	6.8	11.8	-13.1	-3.1
		5000	6.8	11.8	-11.6	-1.6
5800		6.8	11.8	-9.8	0.2	
2500	130	440E	3.6	0.5	-21.1	-11.1
		5000	3.6	2.0	-19.6	-9.6
		5800	3.6	3.8	-17.8	-7.8
	092 110	440E	3.6	5.5	-21.1	-11.1
		5000	3.6	7.0	-19.6	-9.6
		5800	3.6	8.8	-17.8	-7.8
250M	147	5000	3.6	1.9	-13.6	-13.6
		5800	3.6	3.7	-7.9	-7.9
		5800L	3.6	3.7	-7.9	-7.9
250X	172	5000	3.6	1.9	-13.6	-13.6
		5800	3.6	3.7	-7.9	-7.9
		5800L	3.6	3.7	-7.9	-7.9

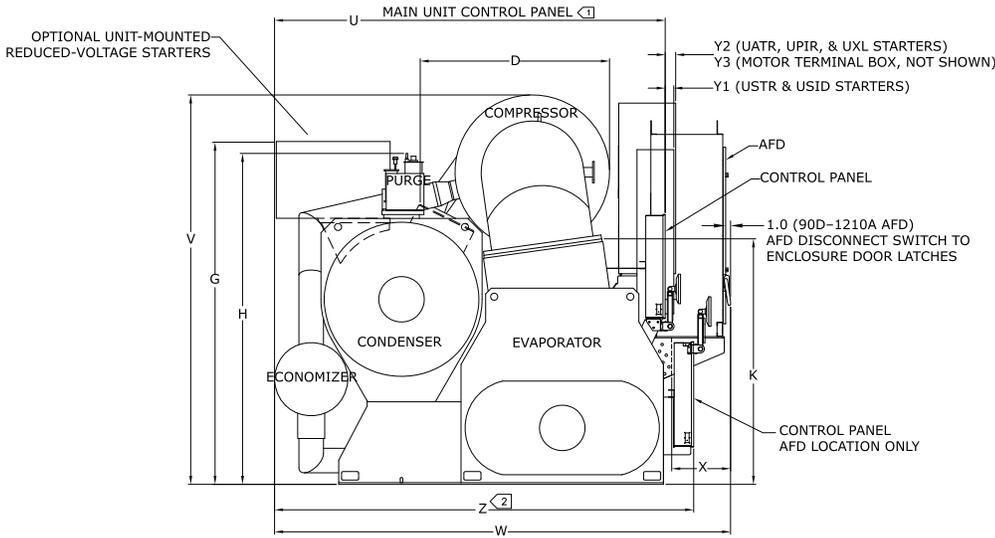
Data for the following figure is found in Table 6, p. 14  
and Table 7, p. 14.

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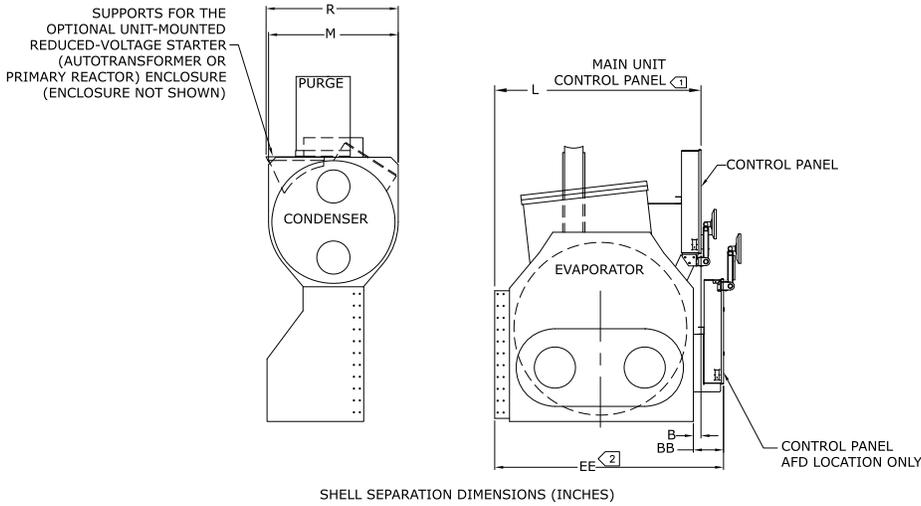
Dimensions and Weights

Figure 3. Assembly for CDHF and CDHG CenTraVac chillers (CDHF shown)



NOTES:

- <1> ADD 1.5" FOR DISTANCE TO TRACER ADAPTIVIEW™ DISPLAY MOUNTING ARM IN STOWED POSITION.
- <2> ADD 2.2" FOR DISTANCE TO TRACER ADAPTIVIEW DISPLAY MOUNTING ARM IN STOWED POSITION (AFD UNITS).
- <3> BRACKETS ARE WELDED TO EVAPORATOR ON 900-1210A AFD. SUPPORTS CAN BE UNBOLTED FROM BRACKETS.



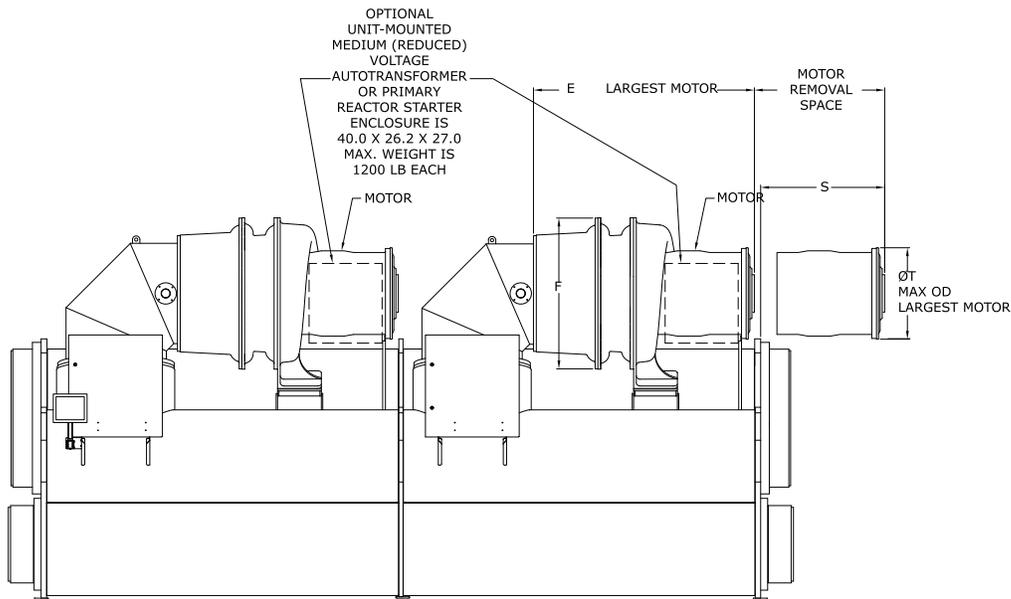
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Dimensions and Weights

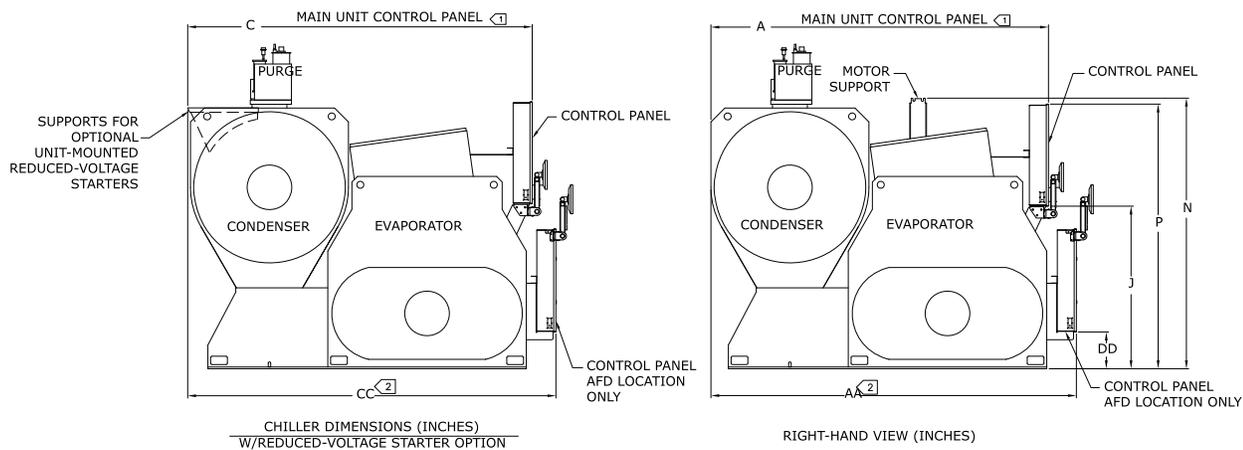
Figure 4. Assembly for CDHF and CDHG CenTraVac chillers (CDHF shown)



CDHF UNIT SHOWN (COOLING ONLY)  
CHILLER DIMENSIONS (INCHES)

NOTES:

- 1] ADD 1.5" FOR DISTANCE TO TRACER ADAPTIVIEW™ DISPLAY MOUNTING ARM IN STOWED POSITION.
- 2] ADD 2.2" FOR DISTANCE TO TRACER ADAPTIVIEW DISPLAY MOUNTING ARM IN STOWED POSITION (AFD UNITS)
- 3] BRACKETS ARE WELDED TO EVAPORATOR ON 900-1210A AFD. SUPPORTS CAN BE UNBOLTED FROM BRACKETS.



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**Dimensions and Weights**

**Weights**

**Single Compressor and Duplex Chillers: Models CVHE, CVHF, CVHG CDHF, and CDHG**

**Table 9. Compressor and motor weights**

Model	NTON	CPKW <sup>(a)</sup>	Volts	Hz	Motor Weight		Compressor and Motor Weight	
					lb	kg	lb	kg
CVHE	190-270	242	6600	50	2558	1160	7294	3308
	230-320	287	4160	60	2530	1147	7266	3295
	300-420	379	6600	50	2767	1255	8185	3712
	360-500	453	6600	60	3385	1535	8803	3992
CVHF	350-485	453	6600	60	3385	1535	8013	3634
	350-570	588	480	60	2803	1271	7431	3370
	620-870	957	2300	60	3862	1751	9900	4490
	650-910	957	2300	60	3862	1751	9900	4490
	1060-1280	1228	4160	60	4559	2067	10597	4806
	1070-1300	1228	4160	60	4559	2067	10714	4859
CVHG	1470-1720	1340	2400	60	5196	2356	13932	6319
	480-565	489	6600	50	3794	1720	10000	4535
	670-780	621	6600	50	4685	2125	11311	5130
CDHF <sup>(b)</sup>	920-1067	621	6600	50	4685	2125	12151	5511
	1500-2000	745	460	60	3460	1569	9498	4308
	2100-2500	1062	460	60	4296	1948	10334	4687
CDHG <sup>(b)</sup>	3500	1340	2400	60	5196	2356	13911	6309
	1250-1750	621	6600	50	4685	2125	11311	5130
	2150	621	6600	50	4685	2125	12151	5511

**Note:** All weights are nominal and ±10%.

<sup>(a)</sup> Heaviest motor used; does not include the weight of the suction elbow.

<sup>(b)</sup> For Duplex™ chillers, weights shown are for individual components; multiply by two for total component weights (for Duplex chillers only).

**Table 10. Component weights**

Model	Evap Shell Size	Control Panel		Purge		Oil Tank		Suction Elbow <sup>(a)</sup>		Economizer without Free Cooling		Economizer with Free Cooling	
		lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
CVHE	032	119	54	140	64	350	159	279	127	404	183	564	256
CVHE CVHG	050	119	54	140	64	350	159	280	127	635	288	885	401
	080	119	54	140	64	350	159	519	235	976	443	1296	588
CVHF	050	119	54	140	64	350	159	280	127	420	191	670	304
	080	119	54	140	64	350	159	519	135	735	333	1055	479
	142/210/250	119	54	140	64	350	159	722	327	878	398	1348	611
CVHG	142/210	119	54	140	64	350	159	722	327	1433	650	1903	863
CDHF <sup>(b)</sup>	210/250D/250M/250X	119	54	140	64	350	159	683	310	878	398	1348	611
CDHG	210/250	119	54	140	64	350	159	1350	612	1433	650	1903	863

**Note:** All weights are nominal and ±10%.

<sup>(a)</sup> Suction elbow weights include flanges and assume largest compressor available for that size.

<sup>(b)</sup> For Duplex chillers, weights shown are for individual components; multiply by two for total component weights (for Duplex chillers only).

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Dimensions and Weights

**Table 11. Evaporator and condenser bundle weights**

Model	Shell Size	Bundle Size <sup>(a)</sup>	Evaporator				Condenser			
			Shell <sup>(b)</sup>		Waterbox <sup>(c)</sup>		Shell <sup>(d)</sup>		Waterbox <sup>(c)</sup>	
			lb	kg	lb	kg	lb	kg	lb	kg
CVHE	032S	320	2778	1260	653	296	2458	1115	644	292
	032L	320	3483	1579	653	296	3006	1363	644	292
CVHE CVHF CVHG	050S	700	4897	2221	1061	481	3526 <sup>(e)</sup>	1599	1328	602
	050L	700	5984	2714	1061	481	4436 <sup>(e)</sup>	2012	1328	602
	080S	1400	7884	3283	2490	1129	5280	2394	2565	1164
	080L	1400	9653	4066	2490	1129	6776	3073	2565	1164
	142M	1420	11036	5005	3701	1679	N/A	N/A	5330	2418
	142L	1420	11938	5414	3701	1679	10995	4987	5330	2418
	142E	1420	12921	5860	3701	1679	N/A	N/A	5330	2418
	210L	2100	14755	6692	6403	2904	14154	6420	7319	3320
250	2500	20068	9102	8343	3784	17200	7801	9144	4148	
CDHF CDHG	210D	2100	22437	10177	8382 <sup>(f)</sup>	3802 <sup>(f)</sup>	22635	10267	8928 <sup>(f)</sup>	4050 <sup>(f)</sup>
	250D	2500	24610	11162	10954 <sup>(f)</sup>	4969 <sup>(f)</sup>	25853	11726	11442 <sup>(g)</sup>	5190 <sup>(f)</sup>
	250M	2500	28679	13008	10954 <sup>(f)</sup>	4969 <sup>(f)</sup>	29817	13524	11442 <sup>(f)</sup>	5190 <sup>(f)</sup>
	250X	2500	31902	14470	10954 <sup>(f)</sup>	4969 <sup>(f)</sup>	33486	15188	11442 <sup>(f)</sup>	5190 <sup>(f)</sup>

**Note:** All weights are nominal and ±10%.

- (a) Bundle weights are for the maximum bundle size for chiller family with TECU.035 tubes.
- (b) Evaporator shell weight includes: Evaporator + Control Panel + Legs; waterbox weight is NOT included.
- (c) Based on two-pass marine, 300 lb (136 kg); includes supply and return.
- (d) Condenser shell weight includes: Condenser + Oil Tank + Purge + Legs; waterbox weight is NOT included.
- (e) Condenser bundle is a 500.
- (f) Based on 1-pass marine, 300 lb (136 kg); includes supply and return.

**Table 12. Unit-mounted starters/Adaptive Frequency™ drives**

		lb	kg
<b>Low Voltage (less than 600 volts)</b>	Wye Delta	557	252
	Solid State	557	252
<b>Adaptive Frequency Drive (less than 600 volts)</b>	405 amp	1680	762
	608 amp	1680	762
	900 amp	3000	1360
	1210 amp	3000	1360
	Across the line	557	252
<b>Medium Voltage (2300–6600 volts)</b>	Primary Reactor	1586	719
	Autotransformer	1639	743

**Note:** All weights are nominal and ±10%.

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# Disassembly

## Remove Nitrogen Charge

**⚠ WARNING**

**Refrigerant May Be Under Positive Pressure!**

Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage. System contains refrigerant and may be under positive pressure; system may also contain oil. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or non-approved refrigerant additives.

**NOTICE**

**Equipment Damage!**

Mixing refrigerants or oils could result in equipment damage including bearing damage, introduction of acids into the chiller, or continuous purge pump-out in high-head/high ambient applications. CenTraVac chillers are manufactured with different refrigerant/oil systems: 1) chillers using R-123 refrigerant and OIL00022 compressor oil, and 2) chillers using R-514A refrigerant and OIL00334/OIL00335 compressor oil. Verify proper refrigerant and oil for your chiller and do NOT mix refrigerants or oils!

This *Installation Guide* applies to CenTraVac™ chillers with two different refrigerant and oil systems:

- R-123 and OIL00022
- R-514A and OIL00334/OIL00335

**Important:** Verify proper refrigerant and oil for your chiller before proceeding!

**Note:** This manual applies to model CDHF, CDHG, CVHE, CVHF, and CenTraVac chillers.

**Important:** Remove the nitrogen charge from the chiller vessel before starting any disassembly procedures.

**Note:** New units ship with a 5 psig (34.5 kPag) dry nitrogen holding charge at nominal 72°F (22°C).

**Important:** New units that have been factory run-tested contain residual refrigerant; vent discharge outdoors.

Check to make sure there is a positive pressure holding charge.

## Introduction

The disassembly and reassembly procedures described in this manual should be performed only on chillers that have been ordered with this shell option. The process is to be initiated by experienced service technicians. Contact your local Trane Service office for assistance if required.

This section discusses a typical disassembly process. Proper lifting techniques vary based on mechanical room layout.

- It is the responsibility of the person(s) performing the work to be properly trained in the safe practice of rigging, lifting, securing, and fastening the components involved.
- It is the responsibility of the person(s) providing and using the rigging and lifting devices to inspect these devices to ensure they are free from defect and are rated to meet or exceed the published weights.
- Always use rigging and lifting devices in accordance with the applicable instructions for such devices.

**Note:** Additional gaskets and O-rings are shipped with the chiller when compressor doweling and/or separable shells are selected.

**⚠ WARNING**

**Heavy Object!**

Failure to follow instructions below could result in unit dropping which could result in death or serious injury, and equipment or property-only damage. Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.

**NOTICE**

**Equipment Damage!**

Failure to remove the strain relief with the sensor could result in equipment damage. Do NOT attempt to pull sensor bulb through the strain relief; always remove the entire strain relief with the sensor.

## Wiring Disassembly

Before separating shells, remove the purge, the compressor, and the various unit mounted sensors (frame LLIDs) as indicated. If possible, the best method

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is to remove the sensor and carefully coil the wire after labeling the device and its location to aid in reinstallation. All sensors connect to the buss wiring with a universal plug. This allows easy disconnection and reconnection of the sensors.

## Purge Unit Removal

### **⚠ WARNING**

#### **Refrigerant May Be Under Positive Pressure!**

Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage.

System contains refrigerant and may be under positive pressure; system may also contain oil. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or non-approved refrigerant additives.

### **⚠ WARNING**

#### **Hazardous Voltage w/Capacitors!**

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

*For additional information regarding the safe discharge of capacitors, see PROD-SVB06\*-EN.*

To remove the purge assembly from the top of the condenser:

1. Isolate the purge unit from the condenser shell by closing the vapor and liquid line valves.
2. Disconnect and mark all piping and wiring attached to the purge unit. Sand all paint off at points and use a tubing cutter where cuts are to be made. See Figure 5, p. 21, and Figure 6, p. 21.
3. Remove the fasteners connecting the purge unit base to its mounting bracket.
4. Two people will be needed to lift purge unit clear of the chiller. Refer to Table 10, p. 18 for purge unit weight. Store the purge unit in a clean dry area.

Reassemble the purge unit in reverse order when the process is complete.

**Figure 5. Example purge unit**



**Figure 6. Purge unit detail**



*Note: Purge unit may appear slightly different than example shown here.*

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Disassembly

# Compressor Motor Assembly Removal

## NOTICE

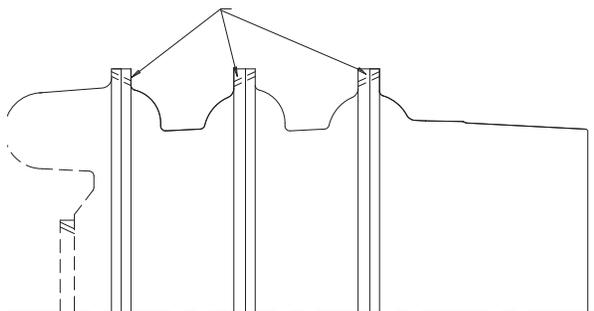
### Compressor Damage!

Failure to follow instructions below could cause the internal components to shift which could result in serious compressor damage upon starting the unit.

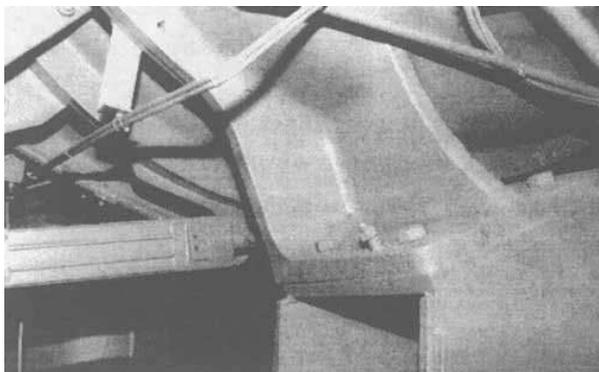
The compressor motor assembly must not be removed from the chiller unless special doweling has been installed at the factory. Doweling must be installed to prevent the interstage casings from shifting. If the compressor/motor assembly is lifted without doweling installed, the internal alignment may shift. It would then be necessary to disassemble and then reassemble the compressor making sure that all internal clearances and specifications are proper. If doweling is not factory installed, and it is necessary to install doweling, contact the local Trane Service Company. The compressor discharge flange and mounting foot are also doweled at the factory to provide proper alignment during reassembly.

Figure 7, p. 22 through Figure 10, p. 22 show factory-installed compressor doweling. If components are not factory doweled, doweling must be installed before proceeding. Contact the local Trane Service Company.

**Figure 7. Compressor dowelings on casings**



**Figure 8. Compressor doweling on evaporator foot (these are standard on all CenTraVac™ chillers)**



**Figure 9. Compressor doweling on condenser discharge flange (these are standard on all CenTraVac chillers)**



1. Disconnect the inlet vane linkage.
  - a. Disconnect the rod end bearings connecting the inlet vane operator levers to the guide vane links as in Figure 10, p. 22 and Figure 11, p. 23. Leave the rod end bearing connecting the guide vane links to the main drive levers attached.
 

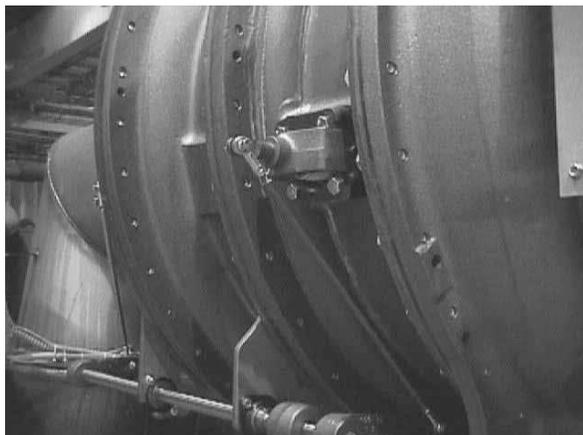
*Note: Do not rotate the rod end bearings on the shaft as this will alter the inlet guide vane operations and compressor performance.*
  - b. Remove the cotter pin securing the vane operator stud to the vane drive and slide the stud out of the main drive. See Figure 12, p. 23.
  - c. Remove the hex head bolts securing the vane drive support assemblies to the compressor castings and remove the main drive and inlet vane levers from the compressor as a unit. See Figure 12, p. 23.
  - d. Remove the hex head bolts securing the vane drive support assemblies to the compressor castings and remove the main drive and inlet vane levers from the compressor as a unit. See Figure 12, p. 23.

**Figure 10. Vane actuator level on suction cover**



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**Figure 11. Vane actuator level on interstage**



**Figure 12. Vane actuator operator mechanism**



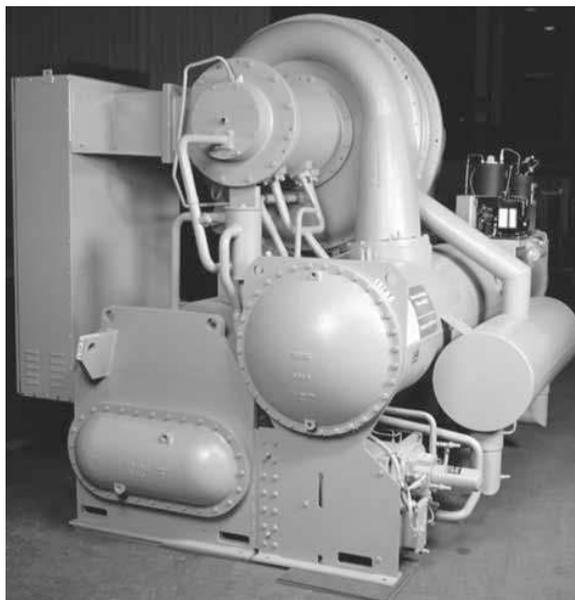
**⚠ WARNING**  
**Refrigerant May Be Under Positive Pressure!**  
Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage. System contains refrigerant and may be under positive pressure; system may also contain oil. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or non-approved refrigerant additives.

2. Disconnect all external vent lines, motor cooling supply and drain lines, and oil supply and drain lines which are connected to the compressor and compressor motor. Sand all paint off the points where cuts are to be made. Use a tubing cutter to ensure that cuts are smooth and square. Figure 13, p. 23 and Figure 14, p. 23 illustrate these lines. Couplings will be used to reconnect the lines when

reassembling the chiller. Cap open lines to prevent entry of foreign material.

**Note:** Cover all open connections to avoid prolonged exposure of oil to humid air. Remove oil if a chiller is kept in a disassembled condition for an extended time.

**Figure 13. Lubrication system supply, drain, and vent lines**



**Figure 14. Lubrication system motor cooling lines**



3. Remove the control panel if necessary. Also, disconnect and remove the unit mounted starter, if so equipped. See "Control Panel Removal," p. 27 for instructions.

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**Disassembly**

4. Remove the economizer vent pipe flange bolts at the compressor connection. See "Economizer Removal," p. 25 for instructions.

**⚠ WARNING**

**Heavy Object!**  
Failure to follow instructions below could result in unit dropping which could result in death or serious injury, and equipment or property-only damage.  
Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.

5. Only Trane Service Agencies have access to the certified lifting plates to allow safe compressor/motor assembly removal. Before removing the compressor/motor assembly, consult with a rigging specialist. Employ rigging specialist procedures when removing the compressor motor/assembly.

**⚠ WARNING**

**Improper Unit Lift!**  
Using the elbow lifting tab to lift chiller could result in chiller dropping which could result in death, serious injury, or equipment damage.

- Do NOT lift chiller using elbow lifting tab. Elbow lifting tab and approved clevis are used ONLY when removing elbow from chiller.
- Do not lift chiller utilizing waterbox lifting lug. Waterbox lifting lug is to be used only for removing waterbox from chiller.

6. Remove the suction elbow.  
There are two styles of suction elbows, a 90° elbow and a three-piece elbow, that can be found in the disassembly process.  
*Note: Apply oil on steel compressor internal parts for rust prevention. Only a thin layer of oil is necessary. Avoid over applying. Use POE break-in oil.*
  - a. Use a sling to support the 90° elbow style suction elbow. Apply slight lifting pressure.
  - b. Three-piece suction elbows have a lifting tab. You will need a lifting clevis to remove the elbow. A Crosby screw pin shackle, model S-209, stock number 1018482 with a 5/8-in. pin is acceptable as shown in Figure 15, p. 24.

**Figure 15. Lifting clevis on the suction elbow lifting tab (three-piece elbow style)**



- c. Remove the bolts from the control mounting bracket on the back of the control panel.
  - d. Remove the suction elbow bolts at the compressor and evaporator connections..
  - e. Lift the suction elbow from the chiller being careful to avoid damage to flange surfaces.
  - f. Install protective covers on the evaporator and compressor connections. Plastic secured with duct tape makes an adequate cover if no heavy objects are set on the openings.
7. Support the compressor/motor assembly as indicated by the rigging specialist (see Step 5). Do not lift the assembly; instead support the assembly to prevent it from slipping as the compressor foot and discharge connection flange bolts are removed.

**NOTICE**

**Equipment Damage!**  
Failure to follow instructions below could result in equipment damage.  
The cast iron foot of the compressor and the discharge flange of the volute can be broken easily if rough handling of the compressor/motor assembly is allowed. Take great care to prevent this breakage when removing the compressor/motor assembly and setting it down, or when moving it laterally on the floor (e.g., on rollers, etc). Take extra care to gently sit the compressor/motor assembly down and avoid letting it swing or drop into an obstruction while lifting or moving it.

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**NOTICE**  
**Equipment Damage!**  
Properly support the compressor casting foot to avoid prevent breakage and equipment damage.

*Note: Plan ahead where the compressor will be secured. Build a suitable plant form to support the assembly before the lift. Gently set compressor onto prefabricated pre-formatted support. Use care not to damage the cast compressor foot (see foot in Figure 8, p. 22). Similarly, avoid damage to the discharge volute flange (see discharge flange in Figure 9, p. 22).*

8. Remove the compressor/motor assembly. Remove the locating dowel pins from the compressor foot and discharge flange connections as shown in Figure 8, p. 22 and Figure 9, p. 22. To remove the dowel pin, first remove the nut on the dowel pin, place a bushing on the pin, and then reinstall the nut. As the nut is tightened, the dowel pin should pull out of its hole; at this point, remove the compressor/motor assembly.

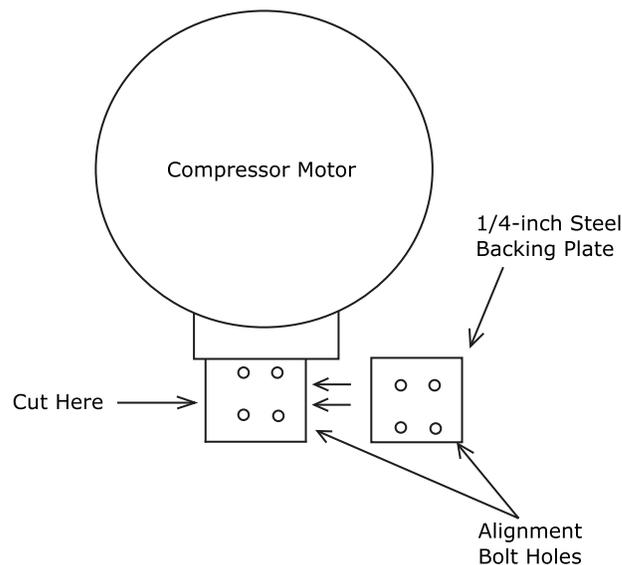
**Compressor Motor Mount Disassembly**

If additional vertical clearance is required, the height of the compressor motor mount can be reduced. Use the following procedure:

1. Before cutting off the motor mount, first fabricate a 1/4-inch steel backing plate.
  - a. Cut the backing plate to shape and clamp it to the motor mount.
  - b. Drill four 1/4-inch holes through the motor mount and the backing plate as shown in Figure 16, p. 25. These holes with bolts or roll pins installed will be used to align the components during reassembly.
  - c. Remove the backing plate.
2. Using an oxyacetylene torch, cut the mount as shown in Figure 16, p. 25.

During reassembly, use the backing plate with bolts or roll pins to locate the pieces properly. After the pieces are located, Trane recommends welding the mount and backing plate in place.

Figure 16. Motor support detail



**Economizer Removal**

**⚠ WARNING**  
**Refrigerant May Be Under Positive Pressure!**  
Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage. System contains refrigerant and may be under positive pressure; system may also contain oil. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or non-approved refrigerant additives.

**⚠ WARNING**  
**Heavy Object!**  
Failure to follow instructions below could result in unit dropping which could result in death or serious injury, and equipment or property-only damage. Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.

1. Support the weight of the economizer with a movable floor jack. Do not lift the economizer; simply support it. Economizer weights are provided in Table 10, p. 18; also see submittal. It is

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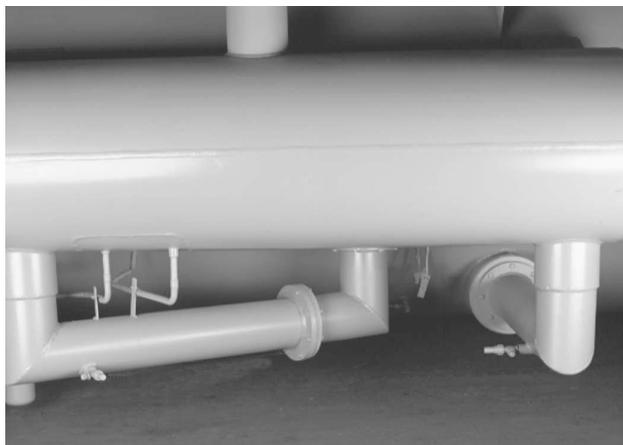


## Disassembly

recommended that larger size economizers be lifted using overhead rigging.

- If the unit has insulation, remove the insulation and loosen the bolts on the condenser liquid line flange. See Figure 17. Do not remove the bolts at this time. Cut the motor cooling drain line(s) if present and cut entering and leaving 5/8 inch OD copper oil cooler lines. Refer to Figure 17, p. 26.

**Figure 17. Condenser liquid line flange**



### NOTICE

#### Angle Valves Damage!

Rigging, handling, and placing chiller components on uneven surfaces can cause damage to angle valves.

Remove angle valves to avoid breakage during handling if it is necessary to remove the economizer.

*Note: Take care to avoid damage to angle valves during handling and transfer of economizer.*

- Loosen the bolts on the evaporator liquid line flange. This connection is near the bottom of the evaporator. See Figure 17, p. 26. Do not remove the bolts at this time.
- Economizers are connected to the condenser shell via a bolted flange. See Figure 22, p. 29. Remove the bolts at this flanged connection.
- Loosen the economizer vent pipe bolts that secure the vent pipes to the compressor interstage castings (unless the compressor has already been removed to gain vertical clearance.)
- Secure economizer with appropriate rigging.
- Remove the bolts from the condenser and evaporator liquid line connection flanges. Adjust the floor jack as necessary to support the weight of the economizer.
- Remove the economizer vent pipe flange bolts to loosen the economizer. When the bolts are free, back the economizer away from the chiller. The

economizer may tend to rotate off the jack towards the chiller. Be prepared to offset the rotation.

- Remove the economizer orifice plates and mark them so they are reinstalled in their original position. The orifice with the greatest number of holes is to be located between the economizer and the evaporator. The orifice with fewer holes is to be located between the condenser and economizer.
- Move the economizer away from the chiller and set it on a pallet. Cover all openings to prevent the entry of foreign material into the economizer, condenser and compressor.
- Use the reverse order to reassemble the economizer on the chiller. Be sure to install new gaskets at the appropriate joints.
- Torque all bolts to specifications. Consult with your Trane service group for specific torques for your economizer design.

## Tracer AdaptiView Display Arm Removal

### ⚠ WARNING

#### Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

*For additional information regarding the safe discharge of capacitors, see PROD-SVB06\*-EN.*

Use the following steps to remove the Tracer AdaptiView™ display arm if additional clearance is required.

- Cut tie wraps holding wires inside of control arm and remove wires from arm.
- Remove 3-3/8-in. bolts from the angle bracket attached to the control panel mounting bracket.
- Use the reverse order to re-attach the arm to the control panel mounting bracket.

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## Control Panel Removal

### ⚠ WARNING

#### Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

*For additional information regarding the safe discharge of capacitors, see PROD-SVB06\*-EN.*

Use the following steps to remove the control panel if additional horizontal clearance is required.

1. Mark and disconnect incoming wiring to the control panel.
2. Remove the bolts from the bottom of the panel which secure the panel to the lower mounting bracket.
3. Loosen the bolts on the back of the panel which secure the panel to the top (suction elbow) mounting bracket. See Figure 18, p. 27.

**Figure 18. Control panel mounting bracket**



4. Two people will be needed to lift the panel clear of the chiller. Refer to Table 10, p. 18 for control panel weight. Steady the panel as the top retaining bolts are removed. Then lift the panel clear. Store the panel in a clean dry area.
5. Use the reverse order to reassemble the control panel.

## Unit-mounted Starter Removal

Additional horizontal and vertical clearances may be obtained by removing the unit-mounted starter on chillers so equipped. See Figure 19, p. 27 and Figure 20, p. 27.

*Note: Unless otherwise stated, lift only vertically on starter-provided devices. Refer to all starter-related manuals prior to lifting. If needed, use a spreader bar to avoid angles in chains and reduce required lifting height clearance.*

**Figure 19. Unit-mounted starter**



**Figure 20. Starter mounting bracket**



The following procedure assumes the chiller is new and has never been installed and therefore there is no electrical power connected to the chiller. If there is power to the unit, follow proper lockout/tagout procedures, and any other applicable safety regulations regarding electric power.

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**Disassembly**

**⚠ WARNING**

**Hazardous Voltage w/Capacitors!**

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

*For additional information regarding the safe discharge of capacitors, see PROD-SVB06\*-EN.*

1. Mark and disconnect the power wiring at the compressor motor terminal lugs inside the starter panel.
2. Mark and disconnect control wiring entering the starter panel.
3. Remove the bolts securing the bottom of the starter to the brackets on the evaporator.
4. To move the starter panel away from the chiller, it is recommended that a fork truck be used. Position the truck so that it is ready to take up the weight of the starter panel. The panel is top-heavy and must be adequately secured before moving. Refer to Table 12, p. 19 for starter weights.

**⚠ WARNING**

**Heavy Objects!**

Placing, assembling, and/or suspending more than one module/subassembly at a time could result in death, serious injury, or equipment damage.

**Always place, assemble, and suspend modules/subassemblies one at a time.**

5. Loosen the bolts which hold the starter to the flange on the motor. Steady the starter panel as the retaining bolts are removed because the panel will tip forward. See Figure 19, p. 27.
6. Support the weight of the starter panel with the fork truck and carefully remove the starter panel from the chiller. Store the panel in a clean dry area free of any corrosive agents. When ready, reassemble the panel on the chiller in reverse order.

**Condenser/Evaporator Disassembly**

After the compressor assembly has been removed on separable shell units, the condenser and evaporator shells can be taken apart at flanged connections to reduce the horizontal clearance required for the chiller installation.

**⚠ WARNING**

**Heavy Object!**

Failure to follow instructions below could result in unit dropping which could result in death or serious injury, and equipment or property-only damage.

Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.

**NOTICE**

**Condenser Legs Damage!**

Failure to follow instructions below could result in condenser legs damage.

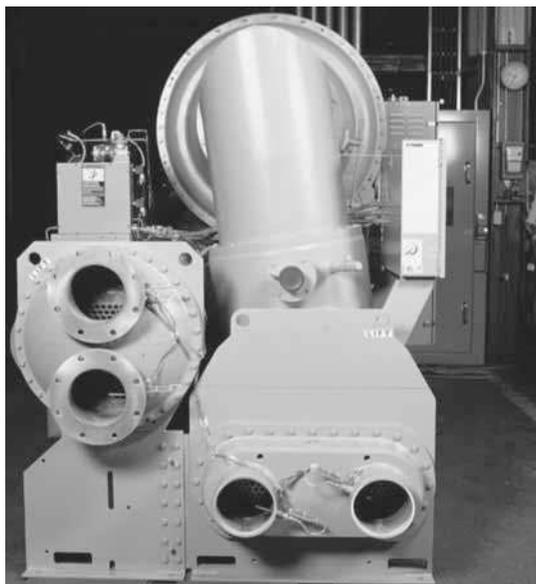
Condenser legs are designed for vertical support only! Additional bracing is required if it is necessary to move the condenser horizontally. Contact your local Trane Service agency for assistance.

*Note: Brace condenser legs to prevent flexing. Do not move the condenser horizontally without bracing legs.*

1. Ensure that condenser and evaporator shells are securely supported on level ground. If not, shim under the bases.
2. Support the condenser with rigging using the lifting holes on the tube sheets. See Figure 21, p. 29. Do not lift the shell, simply support it to avoid slipping as the bolts are removed from the connecting flange.

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Figure 21. Separable shell unit (end view)

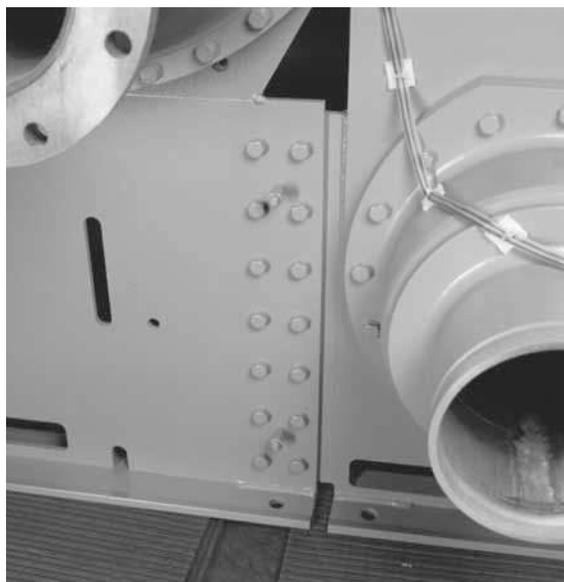


- Remove the bolts from the flanges connecting the evaporator tube sheet and condenser shell support (see Figure 22, p. 29). Then remove the bolts from the flanges connecting the shells.

**Note:** Some small shell combinations do not have flanged connections between shells.

- Remove the two dowel pins located in the flange on each end of the shell tube sheet connections and lift the condenser clear of the evaporator.
- Reassemble the evaporator and condenser shells in the reverse order.
- Torque all bolts to specifications listed in Table 13, p. 32.

Figure 22. Separable shell unit (flange connection)



## Disassembly of Chillers with Options

### Heat Recovery

Use the following steps when disassembling chillers with auxiliary or heat recovery condenser shells to reduce the vertical clearance required for the chiller installation.

#### **⚠ WARNING**

#### **Refrigerant May Be Under Positive Pressure!**

Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage.

System contains refrigerant and may be under positive pressure; system may also contain oil. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or non-approved refrigerant additives.

#### **⚠ WARNING**

#### **Heavy Object!**

Failure to follow instructions below could result in unit dropping which could result in death or serious injury, and equipment or property-only damage.

Ensure that all the lifting equipment used is properly rated for the weight of the unit being lifted. Each of the cables (chains or slings), hooks, and shackles used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift.

- Support the auxiliary or heat recovery condenser with rigging using the lifting holes on the tube sheets. Do not lift the shell; simply support it to avoid slipping as the bolts are removed from the connecting flanges.
- Remove the bolts from the flanges on the interconnecting piping and flanges connecting the auxiliary heat recovery condenser and condenser tube sheets.
- Remove the bolts from the flanges on the interconnecting piping and the flanges connecting the shells.
- Lift the condenser clear of the unit.
- Reassemble the condenser in the reverse order. Install new gaskets at the appropriate joints.
- Torque all bolts to torque specifications listed in Table 13, p. 32.

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## Disassembly

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7. Remove and coil up sensors.

### Free Cooling

Use the following steps on free cooling units to reduce the vertical clearance required for chiller installation.

1. Support the piping and free cooling valve between the condenser and suction elbow with rigging similar to that used for removing the suction elbow. Do not lift the piping; simply support it to avoid slipping as the bolts are removed from the connecting flanges. (Typical rigging for lifting the suction elbow can be seen in Figure 15, p. 24.)
2. Remove the bolts from the flanges.
3. Lift the piping clear of the unit.
4. Reassemble the piping in the reverse order. Install new gaskets at the appropriate joints.
5. Torque all bolts to torque specifications listed in Table 13, p. 32.

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## Reassembly

### NOTICE

#### Equipment Damage!

Failure to remove the strain relief with the sensor could result in equipment damage.

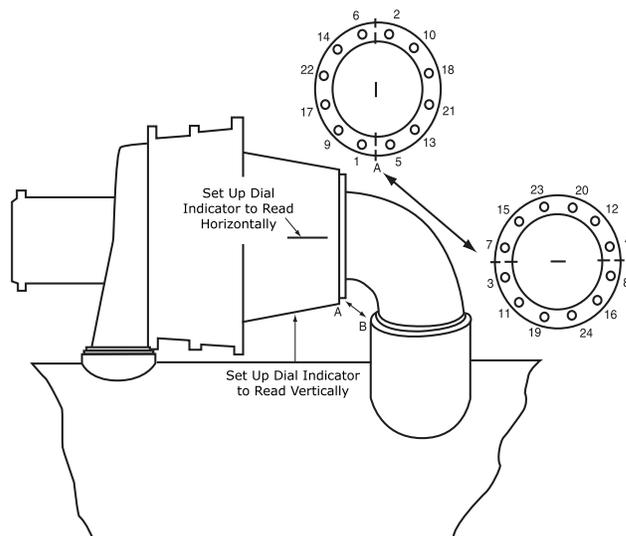
Do NOT attempt to pull sensor bulb through the strain relief; always remove the entire strain relief with the sensor.

It is important to remove used O-rings and gaskets and clean joints before reassembling the compressor with new O-rings and gaskets. All necessary replacement O-rings and gaskets are supplied by the factory when the compressor doweling or separable shell options are ordered.

Use the following procedure to reattach the compressor/motor assembly to the chiller.

- Remove the protective covers on all compressor, condenser, and evaporator connections. Clean all mating surfaces using Loctite® "Chisel" cleaner or CRC® Industrial Gasket Remover. Completely remove old sealing compound from O-ring grooves. Use Loctite "N" primer for final surface preparation.
- Refer to CTV-SB-66F (*General Service Bulletin: CenTraVac O-Ring and Flange Sealant*), or the most recent version, for proper installation of gaskets, O-Rings, and Loctite sealant. Install a new O-ring on the compressor discharge connection mating surfaces. Use Loctite 515 "Gasket Eliminator" to lubricate the O-ring and provide additional sealing. This is the only sealing compound recommended by Trane for use on O-ring joints. To use this sealing compound, apply a light bead (approximately 1/8-in. in diameter) to the O-ring groove, insert the O-ring and then apply a light bead to the O-ring. Also apply a 1/8-in. bead of sealing compound between the O-ring groove and the bolt hole circle. The parts can now be assembled.
- Lift the compressor/motor assembly into place. Insert the bolts in the compressor foot and discharge flange connections. Before tightening any of these bolts, reinstall the dowel pins in the compressor foot and discharge flange.
- Tighten the compressor foot and discharge flange bolts. See Table 13, p. 32 for bolt torque specifications.
- Install and tighten the motor mount bolts. See Table 13, p. 32 for bolt torque specifications.
- Remove the lifting equipment.
- Set up dial indicators on the compressor end of the compressor/motor assembly. See Figure 23, p. 31. The dial indicators are used to monitor horizontal and vertical movement of the compressor/motor assembly when the suction elbow retaining bolts are tightened. Support the dial indicators from the condenser or from a floor stand.

Figure 23. Suction elbow flange bolts



- Clean the suction elbow flange surfaces and O-ring grooves per Step 1. For the evaporator to suction elbow joint, use Loctite 515 per Step 2. For the suction elbow to compressor joint, use 1/8-in. GORE-TEX® Joint Sealant placed approximately 1/8-in. in board of the O-ring groove. This is used in addition to the O-ring. As an option, Loctite 515 may be used in place of GORE-TEX. However, great care must be taken to prevent the sealant from entering the first stage IGV housing. Refer to CTV-SB-66F (*General Service Bulletin: CenTraVac O-Ring and Flange Sealant*), or the most recent version.
- Lift the suction elbow into place using a sling or chain-fall hoist.
- Install the suction elbow retaining bolts.
- Tighten the retaining bolts only "hand tight". Tighten two retaining bolts, 180 degrees apart at the compressor connection. Then tighten two bolts, 180 degrees apart at the evaporator connection. Alternate between connections until all retaining bolts are tight. Monitor the dial indicators to ensure that there is no more than 0.010 inches of compressor movement. If there is more movement than this, loosen all of the bolts, "zero" the dial indicators and repeat the procedure. Figure 23, p. 31 illustrates the bolt tightening sequence.
- Reconnect the economizer vent pipes. Be sure to clean the mating surfaces and use new gaskets on the connections. Tighten the flange bolts just enough so that the gasket material just begins to extrude from between the flanges.

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## Reassembly

13. Reinstall all other chiller components which were removed. Reconnect the inlet vane linkages.
14. Torque all bolts to specifications listed in Table 13, p. 32.

**Table 13. Bolt torques**

Non-gasket Joints Bolt Torques		
Bolt Size (in)	Torque (ft-lb)	
1/2	70	
5/8	150	
3/4	250	
All Other Metal Joints (O-Ring Joins) Shall Use the Following Torques		
Bolt Size (in)	Torque (ft-lb)	
	Min.	Max
1/4	5	7
5/16	11	15
3/8	22	27
1/2	55	75
5/8	120	165
3/4	200	280
1	400	550
All Joints with Flat Elastomeric Gaskets Shall Use the Following Bolt Torque		
Bolt Size (in)	Torque (ft-lb)	
	Min.	Max
5/16	8	12
3/8	12	18
1/2	33	50
5/8	70	90
3/4	105	155

15. Reconnect the previously cut compressor/motor oil supply and return lines and the motor cooling lines using the factory-supplied couplings.

## Brazing

### ⚠ WARNING

#### Explosion Hazard and Deadly Gases!

Failure to follow all proper safe refrigerant handling practices could result in death or serious injury.

Never solder, braze or weld on refrigerant lines or any unit components that are above atmospheric pressure or where refrigerant may be present. Always remove refrigerant by following the guidelines established by the EPA Federal Clean Air Act or other state or local codes as appropriate. After refrigerant removal, use dry nitrogen to bring system back to atmospheric pressure before opening system for repairs. Mixtures of refrigerants and air under pressure may become combustible in the presence of an ignition source leading to an explosion. Excessive heat from soldering, brazing or welding with refrigerant vapors present can form highly toxic gases and extremely corrosive acids.

Except as noted in the following, braze with the following filler metals:

- Braze all copper-to-copper joints with A.W.S. BcuP-6 filler metal.
- Braze all copper-to-brass joints with A.W.S. BcuP-6 filler metal using white or black brazing flux.
- Braze all other joints with A.W.S. Bag-28 filler metal.

Bleed dry nitrogen through the lines while brazing to prevent the formation of oxides which can contaminate the oil and refrigerant systems.

**Note:** Use silver soldering with 96% Sn-4% Ag (for example, J.W. Harris Co. Stay Brite®) to replace brazing when the heat from brazing would be detrimental to the immediate or nearby parts.

#### Examples:

1. Joints next to threaded joints in which the copper or brass threads become too soft and/or Loctite® loses its sealing capability due to excess heat.
2. Joints next to valves in which the valves cannot be taken apart or are not recommended for brazing.

## Final Installation Procedures

After the chiller has been moved to the equipment room and reassembled under Trane supervision, leak testing, and evacuation can be performed by Trane or under Trane supervision. Upon verification of leak tightness, installation can proceed for unit piping, wiring, etc. After installation has been completed, fill out CTV-ADF001\*-EN (CenTraVac™ Installation Completion Check Sheet and Request for Trane Service) to schedule the startup; the chiller

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**Reassembly**

commissioning process can be completed by Trane or under the supervision of authorized Trane personnel.

**Note:** CTV-ADF001\*-EN is also included in the "Forms" section of CVHE-SVX02\*-EN (Installation, Operation, and Maintenance: CVHE, CVHF, CVHG Water-Cooled CenTraVac™ Chillers with Tracer AdaptiView™ Control) and CDHF-SVX01\*-EN (Installation, Operation, and Maintenance: CDHF and CDHG Water-Cooled CenTraVac™ Chillers with Tracer AdaptiView™ Control), or the most recent revisions.

For additional information regarding compressor disassembly and reassembly, refer to CVHE-SB-10B (General Service Bulletin: Compressor Doweling), or the most recent version.

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Ingersoll Rand (NYSE: IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands – including Club Car®, Ingersoll Rand®, Thermo King® and Trane® – work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a global business committed to a world of sustainable progress and enduring results.



[ingersollrand.com](http://ingersollrand.com)

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We are committed to using environmentally conscious print practices.

CVHE-SVN04M-EN 10 Jan 2019  
Supersedes CVHE-SVN04L-EN (January 2017)

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**Supplier: Hunter Mechanical & Controls, Inc.**

**Contractor Questionnaire**

Show evidence of having satisfactorily serviced, maintained, and repaired units of 250 tons or larger by providing a list of five (5) jobs wherein teardown and rebuilding of these units was accomplished within the past three years including persons to contact.

Company Name:**Crossings Community Church**  
Name of Contact:**Pat Fowler**  
Phone Number:**(405) 202-1966**  
Description of Service Provided:**Chiller maint/repair**  
Dates of Service:**2005 - current**

Company Name:**Church of the Servant**  
Name of Contact:**Eric Nance**  
Phone Number:**(405) 416-3791**  
Description of Service Provided:**Chiller maint/repair**  
Dates of Service:**2007 - current**

Company Name:**Moore Public Schools**  
Name of Contact:**Matt Montgomery**  
Phone Number:**(405) 413-5982**  
Description of Service Provided:**Chiller maint/repair**  
Dates of Service:**2009 - current**

Company Name:**OSBI - Forensic Center**  
Name of Contact:**Doug Perkins**  
Phone Number:**(405) 715-9540**  
Description of Service Provided:**Chiller maint/repair**  
Dates of Service:**2003 - current**

Company Name:**Kaizon Properties, LLC/Western Towers**  
Name of Contact:**Bobbi Jackson**  
Phone Number:**(405) 772-7707**  
Description of Service Provided:**Chiller maint/repairs**  
Dates of Service:**2019 - current**

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Provide written evidence of having access to factory parts on a 24-hour basis.

**If an emergency for parts or equipment were to arise, we have after-hours contact numbers for the following manufacturers. They will open the store for us to get available parts.**

**York: 1-866-668-0946**

**Trane: 405-787-2354**

**Carrier: 405-440-2500**

List any exceptions to Section I of the bid specifications – Chiller Repair, Replacement, or Installation:

**N/A**

List any exceptions to Section II of the bid specifications - Bidder Qualifications:

**N/A**

List any exceptions to Section III of the bid specification - Materials and Workmanship :

**N/A**

List any exceptions to Section IV of the bid specifications –Air Conditioning and Heating Services:

**N/A**

List any exceptions to Section V of the bid specifications –Air Conditioning/Heating Units and Equipment Installation Services:

**N/A**

List any exceptions to Section VI of the bid specifications –Contractor shall comply with EPA, OSHA, and other government regulations set forth in the Clean Air Act:

**N/A**

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## Solicitation 24613

# AIR CONDITIONING, HEATING, AND CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVI

**Bid Designation: Public**



**City of Oklahoma City and its Trusts**

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## Bid 24613

# AIR CONDITIONING, HEATING, AND CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVI

Bid Number **24613**  
Bid Title **AIR CONDITIONING, HEATING, AND CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVI**  
Expected Expenditure **\$1,500,000.00** (This price is expected - not guaranteed)

Bid Start Date **Apr 26, 2023 7:51:00 AM CDT**  
Bid End Date **May 17, 2023 10:00:00 AM CDT**  
Question & Answer  
End Date **May 11, 2023 12:00:00 PM CDT**

Bid Contact **Monica Hardesty**  
**monica.hardesty@okc.gov**

Bid Contact **City Clerk**  
**cityclerk@okc.gov**

Bid Contact **Billy Bray**  
**billy.bray@okc.gov**

Contract Duration **1 year**  
Contract Renewal **2 annual renewals**  
Prices Good for **Not Applicable**

Standard Disclaimer **This site and system is hosted by Oklahoma City through BIDSYNC for use of The City of Oklahoma City and its trusts.**  
**Certain screens and flags may show the name and/or seal of The City; however, such references do not indicate or change the contracting entity.**

Bid Comments **INTENT: To obtain pricing agreements for labor and materials to repair and/or install various air conditioning, heating and chiller units for various City departments and Trusts.**

**The Expected Expenditure amount of \$1,500,000 for this commodity is an estimate for a one-year period based on past history and future projections. The quantity of any item when shown in the price schedule as an estimate of an annual requirement is only an estimate based on currently available information. The purchase of any such item or quantity is not guaranteed. Any offer conditioned upon a promise by the Contracting Entity to purchase a minimum or definite quantity of such an item will be rejected. See the specification bid packet for more information.**

**Please do not zip files**

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Item Response Form

Item **24613-01-01 - Chiller Repair, Replacement or Installation: Regular Hour Labor Charge per Hour**  
Lot Description **Chiller Repair, Replacement or Installation**  
Quantity **1 hour**  
Unit Price   
Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
N/A  
Oklahoma City OK 73102  
**Qty 1**

**Description**

Chiller Repair, Replacement or Installation

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Item **24613-01-02 - Chiller Repair, Replacement or Installation: Overtime Hour Labor Charge per Hour**  
Lot Description **Chiller Repair, Replacement or Installation**  
Quantity **1 hour**  
Unit Price   
Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
N/A  
Oklahoma City OK 73102  
**Qty 1**

**Description**

Chiller Repair, Replacement or Installation

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Item **24613-01-03 - Chiller Repair, Replacement or Installation: Markup on Materials over Contractor's Cost**  
Lot Description **Chiller Repair, Replacement or Installation**  
Quantity **1 each**  
Percentage   
Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
N/A  
Oklahoma City OK 73102  
**Qty 1**

**Description**

Chiller Repair, Replacement or Installation

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Item **24613-01-04 - Chiller Repair, Replacement or Installation: Service Call Hourly Rate**  
Lot Description **Chiller Repair, Replacement or Installation**  
Quantity **1 hour**  
Unit Price   
Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
N/A  
Oklahoma City OK 73102  
**Qty 1**

**Description**

Enter hourly rate for service call (if applicable).

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Item **24613-02-01 - Air Conditioning and Heating Services and Repairs: Regular Hour Labor Charge per Hour**  
 Lot Description **Air Conditioning and Heating Services and Repairs**  
 Quantity **1 hour**  
 Unit Price   
 Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A  
 Oklahoma City OK 73102  
**Qty 1**

**Description**  
 Chiller Repair, Replacement or Installation

Item **24613-02-02 - Air Conditioning and Heating Services and Repairs: Overtime Hour Labor Charge per Hour**  
 Lot Description **Air Conditioning and Heating Services and Repairs**  
 Quantity **1 hour**  
 Unit Price   
 Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A  
 Oklahoma City OK 73102  
**Qty 1**

**Description**  
 Chiller Repair, Replacement or Installation

Item **24613-02-03 - Air Conditioning and Heating Services and Repairs: Markup on Materials over Contractor's Cost**  
 Lot Description **Air Conditioning and Heating Services and Repairs**  
 Quantity **1 each**  
 Percentage   
 Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A  
 Oklahoma City OK 73102  
**Qty 1**

**Description**  
 Chiller Repair, Replacement or Installation

Item **24613-02-04 - Air Conditioning and Heating Services and Repairs: Service Call Hourly Rate**  
 Lot Description **Air Conditioning and Heating Services and Repairs**  
 Quantity **1 hour**  
 Unit Price   
 Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A

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Oklahoma City OK 73102

**Qty 1**

**Description**

Enter hourly rate for service call (if applicable).

Item **24613-03-01 - Air Conditioning and Heating Units and Installation: Regular Hour Labor Charge per Hour**

Lot Description **Air Conditioning and Heating Units and Installation**

Quantity **1 hour**

Unit Price

Delivery Location **City of Oklahoma City and its Trusts**

[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

**Qty 1**

**Description**

Chiller Repair, Replacement or Installation

Item **24613-03-02 - Air Conditioning and Heating Units and Installation: Overtime Hour Labor Charge per Hour**

Lot Description **Air Conditioning and Heating Units and Installation**

Quantity **1 hour**

Unit Price

Delivery Location **City of Oklahoma City and its Trusts**

[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

**Qty 1**

**Description**

Chiller Repair, Replacement or Installation

Item **24613-03-03 - Air Conditioning and Heating Units and Installation: Markup on Materials over Contractor's Cost**

Lot Description **Air Conditioning and Heating Units and Installation**

Quantity **1 each**

Percentage

Delivery Location **City of Oklahoma City and its Trusts**

[See Bid Packet for Location\(s\)](#)

N/A

Oklahoma City OK 73102

**Qty 1**

**Description**

Chiller Repair, Replacement or Installation

Item **24613-03-04 - Air Conditioning and Heating Units and Installation: Service Call Hourly Rate**

Lot Description **Air Conditioning and Heating Units and Installation**

Quantity **1 hour**

Unit Price

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Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
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 Oklahoma City OK 73102  
**Qty 1**

**Description**

Enter hourly rate for service call (if applicable).

Item **24613-04-01 - Manufacturer's Factory Training: Factory Training**

Lot Description **Manufacturer's Factory Training**

Quantity **1 each**

Prices are not requested for this item.

Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A  
 Oklahoma City OK 73102  
**Qty 1**

**Description**

Attach evidence of certified factory training to this line item and type the manufacturer's name in the Buyer note field.

Item **24613-05-01 - Manufacturer's Teardown Manuals: Teardown Manuals**

Lot Description **Manufacturer's Teardown Manuals**

Quantity **1 each**

Prices are not requested for this item.

Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A  
 Oklahoma City OK 73102  
**Qty 1**

**Description**

Attach evidence of having manufacturers' "teardown" manuals for the specific machines to be covered.

Item **24613-06-01 - Attachments: Bidder's Current W-9**

Lot Description **Attachments**

Quantity **1 each**

Prices are not requested for this item.

Delivery Location **City of Oklahoma City and its Trusts**  
See Bid Packet for Location(s)  
 N/A  
 Oklahoma City OK 73102  
**Qty 1**

**Description**

Attach W-9 on the most current IRS FORM.

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**BID/PRICING AGREEMENT/CONTRACT FORM & NON-DISCRIMINATION  
STATEMENT**  
**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS  
DOCUMENT PRIOR TO SUBMITTING IN THE ELECTRONIC BID SYSTEM**

**Please be aware that typing in your password acts as your electronic signature, which is  
just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

**THIS DOCUMENT MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID  
OR THE BID WILL BE REJECTED**

**INSTRUCTIONS:** This document MUST be electronically signed and submitted with the bid for the bid to be valid. Failure to electronically sign the this document prior to submitting the electronic bid will result in rejection of your bid. This document constitutes your bid and will be the Pricing Agreement/Contract document under which you are to perform, should your bid be accepted, so it must be properly and completely executed. It is, therefore, essential that you are aware of its terms, as well as those contained in the specifications.

Submit this electronically signed document, along with all accompanying documents:

THIS PRICING AGREEMENT/CONTRACT is made and entered into, by and between  hereinafter referred to as "Bidder" and The City of Oklahoma City, a municipal corporation, or a participating Public Trust of which The City of Oklahoma City is Beneficiary hereinafter referred to as the "Contracting Entity."

WITNESSETH:

WHEREAS, the governing body of the Contracting Entity has approved certain specifications and requested by notice that bids be submitted thereon; and

WHEREAS, this document until executed by the Mayor/Chairman of the Contracting Entity constitutes the Bidder's proposal; and

NOW, THEREFORE, that in consideration of the covenants, agreements and representations as hereinafter set forth, it is mutually agreed by the parties that:

1. The Bidder agrees to sell and deliver to the Contracting Entity, the items of material and/or services, specified in the pricing section of the electronic bid submittal, which is attached hereto and made a part of this Pricing Agreement/Contract. List the prompt payment discount, if any, for this agreement in the space provided below:

Discount for Prompt Payment  %  Days

2. The Bidder expressly warrants that all articles, material, and/or work covered in this Pricing Agreement/Contract will conform to the specifications and electronic bid documents attached to this bid and are hereby incorporated, as if set forth in full herein; and further warrants that the same shall be of good material and workmanship, and free from defects.

3. The Bidder understands that all bids are to be submitted in U.S. dollars at a firm price. Bids submitted in any currency other than U.S. dollars will be rejected.

4. The Bidder also understands that all invoices shall be submitted in U.S. dollars and agrees to accept payment in U.S. dollars as full satisfaction of the invoiced amount.

5. If any of the goods fail to meet the warranties contained in Paragraph 2, above, the Bidder, upon notice from the Contracting Entity, shall promptly correct or replace the same at the Bidder's expense. If the Bidder shall fail to so do, the Contracting Entity may cancel this order as to all such goods, and in addition, may cancel the then remaining balance of this order. After notice to the Bidder, all such goods will be held at the Bidder's risk. The Contracting Entity may, at the Bidder's direction, make available such goods to be returned to the Bidder at the Bidder's

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risk, and all transportation charges, both to and from the original destination, shall be paid by the Bidder. Any payment for such goods shall be refunded by the Bidder unless the Bidder promptly corrects or replaces the same at the Bidder's expense.

6. The Contracting Entity agrees to pay to the Bidder the price and amount in accordance with Paragraph 1 above, based on the quantity actually purchased, upon delivery to and acceptance by the Contracting Entity, of the material and/or service[s] above described and upon the filing by the Bidder, and approval by the Contracting Entity, of a verified claim for the amount due.

7. The Bidder agrees, in connection with the performance of work under this Pricing Agreement/Contract:

a. That the Bidder will not discriminate against any employee or applicant for employment, because of race, creed, color, sex, age, national origin, ancestry or disability. The Bidder shall take affirmative action to ensure that employees are treated without regard to their race, creed, color, age, national origin, sex, ancestry or disability. Such actions shall include, but not be limited to, the following: employment, promotion, demotion or transfer, recruitment, advertising, lay-off, termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. The Bidder agrees to post, in a conspicuous place available to employees and applicants for employment, notices to be provided by the City Clerk/Secretary of the Contracting Entity setting forth the provisions of this section, and;

b. That the Bidder agrees to include this non-discrimination clause in any subcontracts connected with the performance of this Pricing Agreement/Contract.

8. In the event of the Bidder's non-compliance with the above non-discrimination clause, this Pricing Agreement/Contract may be canceled or terminated by the Contracting Entity. The Bidder may be declared by the Contracting Entity ineligible for further Pricing Agreement[s]/Contract[s] with the Contracting Entity until satisfactory proof of intent to comply is made by the Bidder.

9. The risk of loss or damage shall be borne by the Bidder at all times until the acceptance of goods, properly packed, by the Contracting Entity.

10. This Pricing Agreement/Contract, specifications, electronic bid submittal documents and any attachments constitutes the entire understanding and agreement of the parties upon the subject matter hereof. There is no agreement, oral or otherwise, which is not contained in or attached to this Pricing Agreement/Contract. This Pricing Agreement/Contract may not be modified or assigned unless approved in writing and signed by both parties.

11. The parties assume and understand that the variables in the Bidder's cost of performance may fluctuate; consequently, the parties agree that any fluctuations in the Bidder's costs will not alter the Bidder's obligations under this Pricing Agreement/Contract nor excuse performance or delay on the Bidder's part.

12. This Pricing Agreement/Contract shall be inoperative during such period of time that the aforesaid delivery or acceptance may be rendered impossible by reason of fire, Act of God or government regulation. Provided, however, to the extent that the Bidder has any commercially reasonable alternative method of performing this Pricing Agreement/Contract by purchase on the market or otherwise, the Bidder shall not be freed of any obligations hereunder by this clause, even though the goods intended for this Pricing Agreement/Contract were destroyed or their delivery delayed because of an event described above.

13. The shipping or receiving of any goods under this Pricing Agreement/Contract shall not be deemed, or be, a waiver of any right to damages for any prior failure to ship or receive any goods.

14. This Pricing Agreement/Contract shall be governed by the laws of the State of Oklahoma.

15. The Bidder shall be responsible for complying with all applicable federal, state and local laws.

16. If submitting a bid for services, the Bidder certifies that they, and any proposed subcontractors, are in compliance with 25 O.S. §1313 and participate in the status Verification System. The Status Verification System is defined in 25 O.S. §1312 and includes but is not limited to the free Employment Verification Program (E-Verify) through the Department of Homeland Security and available at [www.dhs.gov/E-Verify](http://www.dhs.gov/E-Verify).

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The undersigned individual states that the Bidder will be bound by all components of its bid, the specification, the terms and conditions of the Pricing Agreement/Contract, and the requirements for Bidders.

WITNESS the hands of the parties hereto:

**THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID FOR THE BID TO BE VALID**

**Note: The owner or an officer of the business or corporation may sign this document. A Corporate Seal or a letter of authorization is needed for any other signer. For instance, if a Salesman or Manager signs this form, a letter of authorization or Corporate Seal is to be attached.**

Type Name of Authorized Agent

Title of Authorized Agent

Company Name and Address

Zip Code

Telephone Number and Fax Number if any

**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

**THIS FORM MUST BE ELECTRONICALLY SIGNED AND SUBMITTED WITH THE BID OR THE BID WILL BE REJECTED**

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### NON-COLLUSION AFFIDAVIT

**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT PRIOR TO SUBMITTING BID**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.**

**(See Electronic Signatures in Global and National Commerce Act for more information.)**

The undersigned, of lawful age, being duly sworn, upon oath, deposes and says: That the undersigned has the lawful authority to execute the within and foregoing proposal/bid for, and on behalf of, the Proposer/Bidder; that the Proposer/Bidder has not, directly or indirectly, entered into any agreement, express or implied, with any Proposer/Bidder, having for its object the controlling of the price or amount of such proposal/bid, the limiting of the proposals/bids or the Proposers/Bidders, the parceling or farming out to any Proposer/Bidder or other persons, of any part of the Agreement or any part of the subject matter of the proposal/bid, or of the profits thereof, and that Proposer/Bidder has not and will not divulge the sealed proposal/bid to any person whomsoever, except those having a partnership or other financial interest with the Proposer/Bidder in the said proposal/bid, until after the said sealed proposals/bids are opened.

The undersigned further states that the Proposer/Bidder has not been a party to any collusion: among Proposer/Bidders in restraint of freedom of competition, by any agreement to bid at a fixed price or to refrain from proposing; or with any City/Trust official, City/Trust employee or City/Trust agent as to the quantity, quality, or price in the prospective Agreement, or any other terms of the said prospective Agreement; or in any discussions between the Proposers/Bidders or City/Trust official, City/Trust employee or City/Trust agent concerning the exchange of money or other thing of value for special consideration in the letting of Agreement. The Proposer/Bidder states that it has not paid, given or donated or agreed to pay, give or donate to any City/Trust official, officer or employee of the City or awarding agency, any money or other thing of value, either directly or indirectly, in the procuring of the award of Agreement pursuant to this Proposal/Bid.

Witness the hands of the parties hereto:

**The undersigned states that the Proposer/Bidder will be bound by its proposal/bid, the specification, the terms and conditions of the Agreement, and the Requirements for Proposer/Bidders.**

**→ → THIS FORM TO BE COMPLETED BY THE PROPOSER/BIDDER PRIOR TO AGREEMENT APPROVAL ← ←**

<input type="text"/>	<input type="text"/>
Type Name of Authorized Agent/Representative	Title
<input type="text"/>	
Company Name	
<input type="text"/>	<input type="text"/>
Address	Zip Code
<input type="text"/>	
Telephone Number and Fax Number, if any	

**TO BE COMPLETED BY THE NOTARY:**

State of *	)
<input type="text"/>	) SSS
County of *	)
<input type="text"/>	

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[\*State and County where notarized must be typed in for bid/proposal to be considered.][SAK1]

Signed and sworn to  
before me on this

day of

by

[Day]

[Month]

[Year]

[Print the name of the  
agent/representative who signed  
above.]

My Commission  
Number:

[Oklahoma]

Type Name of Notary Public

My Commission  
Expires:

[Date/Year]

[49 Okla. Stat. 2011 §119]

**BIDDER MUST ELECTRONICALLY COMPLETE, SIGN AND NOTARIZE THIS DOCUMENT PRIOR TO SUBMITTING BID**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.**

**(See Electronic Signatures in Global and National Commerce Act for more information.)**

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**BIDDER MUST ELECTRONICALLY COMPLETE THIS FORM PRIOR TO SUBMITTING BID**

**SUPPLIER CONTACT INFORMATION**

The purpose of this form is to assist various City Departments and Trusts with placing orders.

**Sales Contact:**

Company Name:

Address:

Contact Person:

Email Address:

Telephone Number:

Fax Number:

**Billing Contact:**

Company Name:

Address:

Contact Person:

Email Address:

Telephone Number:

Fax Number:

**Service Contact:**

Company Name:

Address:

Contact Person:

Email Address:

Telephone Number:

Fax Number:

After Hours Emergency Number(s)

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(Published in *The Journal Record* on April 26<sup>th</sup>, 2023)

**NOTICE TO BIDDERS**

Notice is hereby given that City of Oklahoma City (“Contracting Entity”) will receive electronic bids at the **OFFICE OF THE CITY CLERK, 200 North Walker Avenue, Oklahoma City, Oklahoma 73102** until 10:00:00 a.m., on the 17<sup>th</sup> day of May, 2023, for the following:

**BID24613 AIR CONDITIONING, HEATING, AND  
CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVICES**

The Contracting Entity has partnered with Periscope (formerly BidSync) to accept bids electronically. You are invited to submit a bid electronically through the Periscope system to supply the goods and/or services specified in the electronic bid packet. The Contracting Entity does not provide access to a computer for electronic bidding or electronic bid submission. Bidders must register in advance with Periscope at <https://prod.bidsync.com/the-city-of-oklahoma-city> in order to submit an electronic bid. The Contracting Entity recommends potential Bidders register and become familiar with the Periscope electronic bidding process in advance of submitting a bid. There is no charge to the Bidder for registering or submitting an electronic bid to the Contracting Entity through Periscope. Instructions on how to get registered to bid through Periscope can be found on The City of Oklahoma City’s website at <https://www.okc.gov/departments/bidding>.

Bids shall be made in accordance with this Notice to Bidder, General Instructions and Requirements for Bidders, Oklahoma Open Records Act and Confidential Information, the Specifications, the Agreement & Non-Discrimination Statement, the Non-Collusion Affidavit, and any other documents which are included in the complete electronic bid packet. The Agreement must be completed, signed, and submitted electronically through Periscope for the bid to be valid.

Bids timely submitted electronically through Periscope shall be opened at the time stated above or later in the City Clerk’s Conference Room, located on the 2nd floor of the Municipal Building. The Periscope system does not allow bids to be submitted after the above stated date and time. There will be no exceptions to this policy. All bids shall remain on file at least 48 hours before an Agreement shall be made and entered.

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**The City of  
OKLAHOMA CITY  
and its Trusts**

**ELECTRONIC BID PACKET  
AIR CONDITIONING, HEATING, AND  
CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVICES  
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## GENERAL INSTRUCTIONS AND REQUIREMENTS FOR BIDDERS

THESE INSTRUCTIONS, REQUIREMENTS AND ANY SPECIAL INSTRUCTIONS CONTAINED IN THE SPECIFICATIONS ARE A PART OF THE TERMS AND CONDITIONS OF THE BIDDER'S IRREVOCABLE BID AS A FIRM OFFER. ANY EXCEPTIONS TO THESE INSTRUCTIONS, REQUIREMENTS OR SPECIFICATIONS MUST BE SPECIFIED AND SUBMITTED WITH THE BIDDER'S BID. THIS CAN BE ACCOMPLISHED BY SUBMITTING AN ALTERNATE OFFER, IF AVAILABLE ON THE BID, OR BY ENTERING INFORMATION INTO THE "NOTE TO BUYER" FIELD. A BIDDER MAY ALSO SUBMIT EXCEPTIONS BY UPLOADING A SEPARATE DOCUMENT LABELED "EXCEPTIONS" INTO THE PERISCOPE SYSTEM. FAILURE TO INDICATE ANY EXCEPTIONS WILL BE REGARDED AS FULL ACCEPTANCE OF THE REQUIREMENTS, INSTRUCTIONS, AND SPECIFICATIONS CONTAINED IN THIS BID PACKET AND ANY OTHER BID DOCUMENTS RELATED TO THIS BID.

1. **EXAMINATION BY BIDDERS:** All Bidders must examine the specifications, drawings, schedules, special instructions and these general instructions and requirements prior to electronically submitting any Bid/Pricing Agreement/Contract. Failure to examine is at the Bidder's own risk as Bidder will be held to the terms, conditions and requirements therein.
2. **SUBMISSION OF FORMS REQUIRED FOR PRICING AGREEMENT/CONTRACT AWARD:** All bids must be completed electronically, on the forms provided by the Contracting Entity through the electronic bidding system. Bids will not be considered unless the Bid/Pricing Agreement/Contract form is completed, signed and submitted by the Bidder in the electronic bidding system. A Letter of Authorization should also be attached and submitted when the Bidder is not authorized by statute and the Bidder's organizational and establishing documents to sign and bind the Bidder to the Bid/Pricing Agreement/Contract documents. The Non-Collusion Affidavit must be executed by the Bidder or an authorized agent and notarized. The notarization must contain:
  - (a) The notary's signature (electronic signature);
  - (b) Jurisdiction where notarization took place (i.e., State of \_\_, County of \_\_);
  - (c) Date of notarization;
  - (d) The notary's commission expiration date;
  - (e) The notary's commission number (Oklahoma);
  - (f) The notarial seal (the notary seal is not required for electronic notarization); and
  - (g) Comply with all other applicable laws. The Non-Collusion Affidavit must be submitted electronically with the electronic bid packet.
3. **SUBMISSION OF BIDS ELECTRONICALLY TO THE CITY CLERK/SECRETARY:** Bids must be submitted electronically through Periscope and shall be opened at the time stated in the Notice to Bidders, or later, in the City Clerk's Conference Room, located on the 2nd floor of the Municipal Building. The Periscope system does not allow bids to be submitted after the deadline. There will be no exceptions to this policy. All bids shall remain on file at least 48 hours thereafter before a Pricing Agreement/Contract shall be made and entered into thereon.
4. **DESCRIPTIVE TERMS:** Unless the term "no substitute" is used, the use of brand name, manufacturer, make, or catalog designation in describing an item does not restrict Bidders to that particular brand name, etc. The term is simply to indicate the type, character, quality and/or performance equivalence of the item desired. However, the proposed substitution item must be of such character, quality and/or performance equivalence as that indicated in the specifications. A proposed substitute item must include complete data as to the manufacturer's name, type, model number, any descriptive bulletins and specifications. This data can be uploaded electronically through the electronic bidding system.
5. **EXCEPTIONS:** Any exceptions or variances to these instructions or specifications must be submitted with the Bidder's bid. This can be accomplished by submitting an alternate offer, if available on the bid, or by entering information in the "Note to Buyer" field. A Bidder may also submit exceptions by uploading a separate document labeled "Exceptions" into the Periscope system. Failure to indicate any exceptions will be construed to mean that the Bidder offers to furnish the exact commodity as described in the bid specifications and as full acceptance of the requirements, instructions, and specifications contained in this bid packet and any other bid documents related to this bid.
6. **UNIT PRICES:** A unit price for each unit bid must be shown and include any applicable taxes, delivery, and packaging and/or packing, if any, unless otherwise specified. If there is an estimated quantity stated as such in the specifications, the estimate is not a guarantee of the quantity which may be purchased. When the quantity in the Periscope system is listed as "1", Bidder shall bid the per individual unit price. The Contracting Entity may purchase one or more bid item at any given time throughout the term of the Pricing Agreement/Contract. The Periscope system will calculate the total based on the quantity requested by the Contracting Entity and the price entered by the Bidder. The Periscope system will calculate the bid price based on the quantity and price. Items bid as an estimated quantity will be awarded on a "no guarantee" basis. Prices shall be extended in decimals, not fractions, and shall include transportation and delivery charges, prepaid by the Bidder to the destination specified in the special instructions of the specifications.
7. **EXEMPTIONS FROM CERTAIN TAXES:** The purchase of certain goods or services by the Contracting Entity is exempt from the payment of excise, transportation, use, and sales tax imposed by the federal, state and/or city governments. Such taxes must not be included in the bid prices. Any taxes that are not exempt must be included in the bid price. No additional payment or compensation will be made for taxes.
8. **PAYMENTS AND DISCOUNTS:**

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- (a) Payment for goods and services as specified in the Pricing Agreement/Contract shall be processed promptly after completion of delivery and acceptance of items and after receipt from Bidder of properly prepared invoice(s) and/or notarized claim voucher(s), if applicable. Purchases may be made by certain City or Trust employees using a purchasing card. Employees of Contracting Entity are required, when possible, to use a purchasing card for purchases under the amount of \$5,000 for a single transaction. For single transactions over \$5,000, the Bidder may request payment be completed by issuance of a purchase order. Processing fees may not be added when a purchasing card is used. The bid price shall cover any fees a bidder may incur.
  - (b) Discounts for prompt payment will not be considered in bid evaluations, unless otherwise specified. Discounts offered by the Bidder will be taken, however, if payment is made within the discount period.
  - (c) Late charges cannot be assessed against Contracting Entity.
- 9. LATE INVOICES:** If the purchase order indicates that the purchase is being made with City funds, all unpaid invoices pertaining to this Pricing Agreement/Contract must be recorded in the Finance Department, Accounts Payable Section, or in the Office of the City Clerk on or before September 30 for all debts incurred during the prior fiscal year (July 1 through June 30), or said invoice shall be void and forever barred. (See 62 Okla. Stat. 2010 § 310.4).
- 10. DELIVERY:**
- (a) All bid prices quoted shall be based on delivery F.O.B. Oklahoma City, Oklahoma or to any points located within the municipal corporate limits (unless otherwise stated in the bid specifications) with all charges prepaid to the actual point of delivery.
  - (b) Bids must show the number of days required for delivery under normal conditions. Unrealistically short or long delivery promises may cause bids to be rejected. A successful Bidder is required to keep the purchasing department advised at all times of the status of the order and delivery. All goods or services shall be delivered within thirty (30) days from the date of the award of the Pricing Agreement/Contract, unless specified otherwise.
- 11. AWARD OF PRICING AGREEMENT/CONTRACTS:** The Contracting Entity reserves the rights to: award by item, groups of items or all items of the bid; to reject any or all bids in whole or in part; and, waive technical defects, irregularities and/or omissions.
- 12. PERFORMANCE BONDS:** If required by the specifications, the successful Bidder must post the performance bond, a certified or cashier's check in the amount required prior to award of Pricing Agreement/Contract.
- 13. PATENTS:** The Bidder agrees to indemnify and save harmless the Contracting Entity, including any of Contracting Entity's employees, the purchasing agent and assistants from all suits and actions of every nature and description brought against the Bidder and/or any assistants because of, or for the use of, patented or licensed appliances, products, or processes. The Bidder shall pay all royalties and charges which are legal, and equitable evidence of such payment or satisfaction shall be submitted upon request of the Contracting Entity, as a necessary requirement in connection with the final execution of any Agreement/Contract in which patented or licensed appliances, products, or processes are to be used.
- 14. TERMINATION:**
- (a) The performance of services and/or the delivery of items under any Pricing Agreement/Contract may be terminated by the Contracting Entity, in whole or in part, whenever it is determined to be in the best interest of the Contracting Entity.
  - (b) Any such termination will be effected by delivery to the Bidder of a termination notice specifying the extent to which performance or services and/or delivery of ordered commodities is terminated, and the date the termination becomes effective.
  - (c) After receipt of a termination notice, the Bidder shall stop performance of services and/or accept no further orders under the Pricing Agreement/Contract.
- 15. COMPLIANCE WITH APPLICABLE LAWS:** All Proposers must comply with all applicable federal, state or local laws and regulations, including Title VI and all provisions of the Civil Rights Act of 1964 42, U.S.C. §§ 2000d, -et seq.
- 16. SELF-INSURED:** The Contracting Entity is self-insured for its own negligence. The liability of the Contracting Entity for acts of negligence are limited and subject to the Governmental Tort Claims Act, 51 O.S. §§ 151, *et seq.*
- 17. RIGHT TO AUDIT:** The Contracting Entity shall at all times have the right to examine books, papers and records of the successful Bidder relative to all aspects of the Pricing Agreements/Contracts awarded as a result of this bid to confirm Pricing Agreement/Contract compliance. Failure to provide the requested information may result in termination of the Pricing Agreement/Contract. This right to audit only affects Pricing Agreement/Contract compliance as a result of this bid, and does not apply to Bidder records beyond the scope of the Pricing Agreement/Contract.
- 18. REFERENCES:** The Contracting Entity has the right to request references from bidders.
- 19. BID EVALUATION:** Bids will be evaluated based upon the lowest overall cost to the Contracting Entity and a bidder's responsiveness to the requirements of the specifications. The Contracting Entity retains the right to waive minor deficiencies of specifications, technicalities or informalities in a bid, provided that the best interest of the Contracting Entity would be served without prejudice to the rights of other bidders.

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**OKLAHOMA OPEN RECORDS ACT AND CONFIDENTIAL INFORMATION**

All materials submitted to the Contracting Entity pursuant to this Bid or Proposal potentially become subject to the mandates of the Oklahoma Open Records Act, 51 O.S. § 24A.1. *et seq.* The purpose of this Act is to ensure and facilitate the public’s right of access to and review of government records so they may efficiently and intelligently exercise their inherent political power. Almost all “records,” as that term is defined in the Act, may be disclosed to the public upon request. Except where specific state or federal statutes create a specific and express exemption or confidential privilege, persons who submit information to public bodies have no right to keep this information from public access nor have a reasonable expectation that this information will be kept from public access.

If you believe that any of the information you have submitted to the Contracting Entity pursuant to this Bid or Proposal is exempt or confidential under a specific state or federal statute, and therefore not subject to public access under the Oklahoma Open Records Act, you must comply with the following:

1. Place said documents/records in a separate electronic file attachment marked “Confidential”. DO NOT label your entire Bid or Proposal as “Confidential” – label only those portions of the Bid or Proposal that you feel are exempt or are made confidential by state or federal law as “Confidential”.
2. For each such document for which you are claiming an exemption or a confidential privilege, identify the federal and/or state law that creates said privilege, e.g., for trade secrets, see 21 O.S. § 1732 (Larceny of Trade Secrets) and the Uniform Trade Secrets Act, 78 O.S. § 85 *et seq.*

Should an Open Records request be presented to the Contracting Entity requesting information you have identified as “Confidential,” you will be responsible for defending your position in the District Court, if needed.

If you fail to identify any records submitted as part of your Bid or Proposal as “Confidential”, you are agreeing that said records are not exempt or confidential and are subject to public access.

Upon receipt of a request by a third party to review or copy records properly identified as “Confidential,” you will be notified of the request and thereby given an opportunity to immediately enforce and protect your rights by initiating an action in a court of competent jurisdiction. Should you fail to timely bring an action to enforce your rights, then the requested records will be released by the Contracting Entity based upon its determination of the application of the Oklahoma Open Records Act.

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# **BID SPECIFICATIONS**

## **AIR CONDITIONING, HEATING, AND CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVICES**

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**BID SPECIFICATIONS  
AIR CONDITIONING, HEATING, AND  
CHILLER INSTALLATION, REPAIR & REPLACEMENT SERVICES**

**Instructions to Bidders**

**INTENT:** To obtain pricing agreements for labor and materials to repair and/or install various air conditioning, heating and chiller units for various City departments and Trusts.

It is anticipated the pricing agreement(s) will be effective on July 1, 2023. The current agreements expire on June 30, 2023.

**SCOPE OF PRICING AGREEMENT/CONTRACT:** The Bidder shall furnish and supply the below listed item(s) in accordance with the terms, conditions and provisions set forth herein.

The Contracting Entity reserves the right to award this Pricing Agreement/Contract to a single Bidder or to multiple Bidders, whichever is deemed to be in best interest of the Contracting Entity. You may bid on some or all items. If you choose not to bid on one of the items respond by typing, "No Bid" in the "Note to Buyer" field of the Line Item in the Periscope system.

**SUBSTITUTE OFFERS:** If the bid specifications provide that the Contracting Entity is accepting substitute offers for a good or service, this option will be available for bidders in Periscope when completing the electronic bid packet. The Contracting Entity is under no obligation to accept a substitute offer.

**CONTRACTING ENTITY:** The term "Contracting Entity" as used throughout this Pricing Agreement/Contract shall mean The City of Oklahoma City and any participating Public Trust which chooses to avail itself of the goods or services from the resultant Pricing Agreement/Contract. Should a participating Public Trust, of which The City of Oklahoma City is Beneficiary, choose to avail itself of goods or services from the resultant Pricing Agreement(s)/Contract(s), the Bidder(s) will honor the terms and conditions, including price, of the Pricing Agreement(s)/Contract(s).

**BIDDER:** Upon award of this Pricing Agreement/Contract, the term "Bidder" shall mean the contracting party supplying the goods and/or services.

**PRICING AGREEMENT/CONTRACT PERIOD:** The Pricing Agreement/Contract shall be for one year with the option to renew for two additional one-year periods. The Pricing Agreement/Contract shall be in effect commencing on the date of award as approved by the Contracting Entity.

**PRICING AGREEMENT/CONTRACT RENEWAL OPTION:**

1. This Pricing Agreement/Contract is renewable for two additional one-year periods at the option of the Contracting Entity. Should the Contracting Entity desire to renew the pricing agreement/contract, a written preliminary notice will be furnished to the Bidder prior to the expiration date of the Pricing Agreement/Contract. (Such preliminary notice will not be deemed to commit the Contracting Entity to renew.)

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2. Upon receipt of the Contracting Entity's preliminary notice, the Bidder shall, if desired, submit a written agreement to continue Pricing Agreement/Contract performance for an additional one-year period.
3. Should the Contracting Entity exercise this option for renewal, the Pricing Agreement/Contract as renewed shall be deemed to include this option provision except that the total duration of this Pricing Agreement/Contract, including any renewals, shall not exceed three years without approval of the Contracting Entity.
4. In all cases Pricing Agreement/Contract renewals must be approved by the Contracting Entity.

**DELIVERY:** Bidders shall specify their proposed delivery times for the requested goods and services in the Line-Item pricing area in the electronic bidding system. If a deadline is specified and no alternative is proposed, the Bidder will have agreed to meet the stated deadline.

**INSPECTION AND ACCEPTANCE AT DESTINATION:**

1. Final inspection and acceptance shall be at destination. Acceptance will occur after the goods or results of the services have been inspected and when determined by designated competent staff to have met the bid specifications. Delivery does not constitute acceptance.
2. Although source inspection by the Contracting Entity is not anticipated under this Pricing Agreement/Contract, the provisions of this article shall in no way be construed to limit the rights of the Contracting Entity to otherwise conduct source inspections when it deems to be appropriate.

**F.O.B. DESTINATION:**

1. The Bidder shall deliver each item F.O.B. Destination, Oklahoma City, Oklahoma, and to any and all points designated in the bid specifications.
2. Inside delivery is required unless specifically and expressly stated in the bid specifications.

**COMMERCIAL PACKAGING:** Preservation, packaging, packing, and marking will be in accordance with Bidder's best commercial practice to provide adequate protection against shipping damage. Bidder is required to replace any goods damaged in shipping or delivery.

**ESTIMATED ANNUAL REQUIREMENTS (NO GUARANTEE):**

1. The quantity of any item, good, or service when shown in the price schedule as an estimate of an annual requirement is merely an estimate based on currently available information. The purchase of any such item or quantity of good or service is not guaranteed. Any offer conditioned upon a promise by the Contracting Entity to purchase a minimum or definite quantity of such an item will be rejected.
2. The Bidder agrees to furnish all quantities ordered by the Contracting Entity during the Pricing Agreement/Contract period.
3. The Contracting Entity agrees to place orders with the Bidder for all its requirements for those items shown in the price schedule, as awarded, except as follows:

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- a. Quantities of items needed under conditions of emergency or public exigency as approved by the Purchasing Agent.
  - b. Quantities of items obtainable from State contracts, as approved by the Purchasing Agent.
  - c. Quantities of items where federal funds are involved, and other action is warranted for federal regulatory compliance purposes.
  - d. Quantities of items awarded under specific and separate pricing agreements/contracts.
  - e. Quantities of items which otherwise are determined to be outside the general scope and intent of this Pricing Agreement/Contract.
4. If requirements for any awarded items do not materialize for the quantity estimated in the applicable price schedule, such failure shall not constitute grounds for equitable adjustment or additional compensation.
  5. There is no obligation to purchase any items from this Pricing Agreement/Contract, and purchases made in future fiscal years or other contract periods are subject to future appropriations and availability of funds.
  6. The Contracting Entity may request Bidder provide quantity discounts when making larger purchases. Quantity discounts will be requested from all Bidders when multiple Pricing Agreements/Contracts are awarded.

**ORDER OF PRECEDENCE:** In the event of an inconsistency between provisions of this Pricing Agreement/Contract, the inconsistency shall be resolved by giving precedence in the following order: (i) Pricing Agreement/Contract articles, (ii) Bid Specifications, (iii) Notice to Bidders, (iv) General Instructions and Requirements for Bidders, (v) other requirements provided by the Contracting Entity in the bid packet, then (vi) attachments, notes, and exceptions by Bidder.

**PAYMENT METHODS:** The ordering departments will utilize purchase order numbers or purchasing cards for ordering the goods and services they require as the need arises during the Pricing Agreement/Contract period.

The Contracting Entity shall not be held liable for any damages sustained by any Bidder for delivery of goods or services awarded by Pricing Agreement/Contract unless accompanied by an authorized purchase order or purchasing card reference name and number. Delivery of goods or services to any department of Contracting Entity without a purchase order document, purchase order number or purchasing card reference name and number given at the time the order is placed shall constitute an unauthorized purchase.

**PAYMENT/INVOICE:**

1. Payments will be processed promptly after completion of delivery of ordered items and after receipt of properly prepared invoices.
2. **FOR ORDERS PLACED BY PURCHASE ORDER:** The original invoice must be mailed directly to The City of Oklahoma City, Accounts Payable, 100 N. Walker Avenue, Suite 200, Oklahoma City, Oklahoma 73102, or invoices may be e-mailed to [accountspayable@okc.gov](mailto:accountspayable@okc.gov). If invoices are e-mailed, a paper copy should not be mailed.

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This information is printed on the front of each purchase order. Copies of invoices may be sent to other addresses upon request. However, if the original invoice is sent to any other address, payment will be delayed, or may not be processed at all. Should another trust or government entity be using this contract they may request a different invoice address.

FOR ORDERS PLACED BY PURCHASING CARD: Do not send invoices, statements etc. to Accounts Payable for purchasing card orders. Please send all purchasing card documents directly to the cardholder. Cardholders are required to submit itemized transaction details such as invoice/delivery tickets with their monthly purchasing card statement. This is a vital part of the monthly reconciliation process. Your cooperation is appreciated. Contracting Entity employees are required, when possible, to use a purchasing card for purchases under the amount of \$5,000 for a single transaction. For single transactions over \$5,000, the bidder may request payment be completed by issuance of a purchase order. Processing fees may not be added when a purchasing card is used. The bid price is expected to cover any fees a bidder may incur.

3. Invoices must contain the following information:
  - a. Bidder's name and address
  - b. Ship to address (department name)
  - c. Purchase order number - **MUST BE INDICATED ON THE INVOICE**
  - d. Itemization of each item purchased to include:
    - i. description/stock number
    - ii. unit price
    - iii. quantity
    - iv. unit of issue (each, box, dozen, pound, etc.)
    - v. total price
  - e. Total amount of invoice
  - f. Date of delivery
4. Invoices should not reflect any outstanding backorders.

**WARRANTY:**

1. The Bidder warrants that at the time of delivery, all items furnished under this Pricing Agreement/Contract will be free from defects in material or workmanship and will conform to the specifications and all other requirements of this Pricing Agreement/Contract. All Bidders will furnish with their bid one copy of their warranty applicable to the supplies or equipment to be furnished.
2. As to any item which does not conform to this warranty, the Bidder agrees that the Contracting Entity shall have the right to:
  - a. Reject and return each nonconforming item to the Bidder for correction or replacement at the Bidder's expense
  - b. Require an equitable adjustment in the Pricing Agreement/Contract price.
3. This warranty shall be in addition to any other rights of the Contracting Entity.
4. All equipment warranties shall start on the date of installation and will be for the full term of said warranty.

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**GENERAL PROVISIONS:** The following documents are attached or by this reference incorporated as a part of this Pricing Agreement/Contract:

- a. Bid/Pricing Agreement/Contract Form & Non-Discrimination Statement
- b. Non-Collusion Affidavit
- c. General Instructions and Requirements for Bidders
- d. Specifications
- e. Oklahoma Open Records Act and Confidential Information

**SAFETY DATA SHEETS:** Any Bidder supplying goods or materials to the Contracting Entity that require a Safety Data Sheet (SDS) will furnish the required sheet or a composite concentration list in one of the following manners:

- a. Submitted as part of the proposal document
- b. Submitted prior to Agreement/Contract award
- c. Submitted with the product invoice
- d. Submitted at the request of the Contracting Entity

In all instances, the Bidder shall furnish the safety data sheets with the products at delivery, and shall comply with all local, state and federal laws providing for identification of materials transported to the Contracting Entity. The appropriate proposal number, Agreement/Contract number, delivery ticket number, or invoice number shall be clearly marked on the safety data sheet or the composite concentration lists. Information regarding Safety Data Sheets can be found on-line at <https://www.osha.gov/Publications/OSHA3514.html>. Any question regarding this requirement should be directed to the following address:

Oklahoma City Risk Management Division  
420 W. Main Street, Suite 630  
Oklahoma City, Oklahoma 73102  
(405) 297-3891

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**BID SPECIFICATIONS**  
**Other Provisions**

**ADDENDA:** It is the Bidder's responsibility to log into the electronic bidding system to monitor any addenda that may be issued during the process. A Bidder's bid will not be accepted if all addenda have not been acknowledged by the Bidder through the electronic bidding system. If you are set up for electronic notifications through the electronic bidding system, you should receive a notification by e-mail when addenda are issued.

**BRAND NAMES/EXAMPLES:** Any brand names are used for **comparative purposes only**. Slight variations from the measurements and sizes given that do not compromise the requirements of the bid specifications will be considered.

**INDEMNITY REQUIREMENTS:** The Bidder assumes all risks incident to or in connection with its purpose to be conducted herein under and shall indemnify, defend and save Contracting Entity harmless from damage or injuries of whatever nature or kind to persons or property arising directly or indirectly out of the Bidder's operations and transportation of the Contracting Entity's equipment to and from repair site regardless of fault and arising from acts or omissions of its employees regardless of fault and shall indemnify, defend, and save harmless Contracting Entity from any penalties for violation of any law, ordinance or regulation affecting or having application to said operation.

**INSURANCE REQUIREMENTS:** The following insurance requirements are applicable and must be obtained prior to contract award if the bid submitted includes on-site installation, on-site maintenance services or other repair services to be performed on the Contracting Entity's property, or if insurance coverage is otherwise requested by the Contracting Entity.

**WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE:**  
The Bidder shall carry Worker's Compensation Insurance in amounts as prescribed by the laws of the State of Oklahoma.

**GENERAL LIABILITY INSURANCE:** The Bidder shall carry a general liability insurance policy to protect the Bidder and any the Contracting Entity as Additional Insured from claims for property damage and bodily injury including death, or other loss which may arise directly or indirectly from the activities, omissions, and operations of the Bidder under the Agreement, whether such activities, omissions, and operations be by the Bidder, its subcontractor, or by anyone employed by or acting for the benefit of the Bidder in conjunction with this Agreement. The general liability policy shall have, at a minimum, the following coverage amounts:

**Property Damage Liability** - Limits shall be carried in the amount of not less than twenty five thousand dollars (\$25,000) to any one person for any single claim for damage to or destruction of property arising out of a single act, accident, or occurrence.

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**All Other Liability** - In the amount not less than one hundred seventy-five thousand dollars (\$175,000) for claims including accidental death, personal injury, and all other claims to any one person out of a single act, accident, or occurrence.

**General Aggregate Limit**- In an amount not less than one million dollars (\$1,000,000) for any number of claims arising out of a single act, occurrence or accident.

**AUTOMOBILE LIABILITY INSURANCE** – The Bidder shall maintain automobile insurance coverage in, at a minimum, the amounts required by Oklahoma law as to the ownership, maintenance, and use of all owned, non-owned, leased or hired vehicles and equipment when said vehicles or equipment is utilized to meet the requirements of this contract.

The insurance policies required herein shall be issued by a company authorized to do business in the state of Oklahoma and acceptable to Contracting Entity. Upon request, the Contracting Entity shall be furnished with a Certificate of Insurance evidencing all of the above-referenced requirements. All policies shall be in the form of an “occurrence” insurance coverage or policy. If any insurance is written in a “claims made” form, the Bidder shall also provide tail coverage that extends a minimum of two years from the expiration of the Pricing Agreement/Contract. Unless stated otherwise above, all policies must be fully insured with any single deductible not exceeding \$25,000. Bidder or Bidder’s insurance company must provide Contracting Entity at least thirty (30) days’ prior written notice of any cancellation or material coverage change in their policies. **The Contracting Entity shall be listed as a Certificate Holder. This Pricing Agreement/Contract requires that Contracting Entity, including The City of Oklahoma City and its participating public trusts to this Contract/Agreement whether named herein or by reference only, be named as additional insured on the Bidder’s insurance policies, except Worker’s Compensation and Employer’s Liability Insurance, to the full limits of the policies and consistent with the same coverages available to the named insured. Any blanket additional insured endorsement which limits coverages to any Contracting Entity is not compliant with this Pricing Agreement/Contract and shall be considered a breach. Contracting Entity must be provided with a Certificate of Insurance or Endorsement evidencing Contracting Entity’s additional insured status prior to contract award. The policy description shall state the following: “Additional insured(s) on the listed policies are those required in the contract.”**

Unless otherwise approved by the Contracting Entity prior to contract award, self-insured retentions will not be accepted unless accompanied by a bond or irrevocable letter of credit guaranteeing payment of the losses, related investigations, claim administration, and defense expenses not otherwise covered by the Bidder’s self-insured retention.

**PROJECT DOLLAR LIMITS:** HVAC services projects exceeding \$100,000 are considered to be a construction project and must be in compliance with additional requirements before services are performed. These projects will require a work order from the City Engineer, or designee, along with the submittal of Contractor’s bonds for the project in accordance with the bonding requirements included in this document.

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There is no guarantee that projects exceeding \$100,000 will be purchased under this pricing agreement. These projects may be bid separately by the Public Works Department or City Trust. It is the City's intention to bid projects exceeding \$100,000 separately from this pricing agreement unless an urgent need is approved by the City Engineer and City Purchasing Agent in advance of the work order being issued.

**WORKORDERS:** The City Engineer, or designee, will issue a Public Works work order for any HVAC services projects exceeding \$100,000, regardless of which department is requesting the service. Contractors must have a work order and purchase order number to begin working on a project. No work orders will be issued for projects exceeding \$100,000 without receipt of the required Contractor's bonding and insurance.

**BONDING REQUIRMENTS:** Projects exceeding \$100,000 will require the Contractor to furnish and maintain Performance, Maintenance and Statutory bonding with good and sufficient securities acceptable to the City of Oklahoma City in connection with the performance of the work under the project prior to the work order being issued. As this is an annual contract involving future work orders, which are undefined at this time, inclusion of bonds is not required as a part of the Bid. Sample bond forms are included as an attachment and may be required for future work orders. **(Note: Bonds shall not be required for future work orders of less than \$100,000 total cost. Bonds shall be required for future work orders of \$100,000 or greater total cost.)** The cost of any required bonds shall be reimbursed by the City or Trust at the direct cost of the bonds, without profit or overhead, and shall be defined with each proposal and work order issued. The cost of the bonds shall be included in the Contractor's proposal/quote and shall be invoiced with the project with documentation of the cost of the bond attached to the invoice.

**UNDUE INFLUENCE:** Upon advertising this solicitation, no officer, employee, agent, or representative of the Bidder shall have any contact or discussion, verbal or written, with any representative of the Contracting Entity (i.e., Trust Officer, City Council member, City staff, etc.) either directly or indirectly through others in which the Bidder seeks to influence any representative of the Contracting Entity regarding any matters pertaining to this solicitation.

Contacts by the Bidder with the Contracting Entity that do not pertain to a solicitation are exempt from this provision. Examples of these exempt contacts are:

- Private, non-business, contacts with the Contracting Entity by the Bidder's employees acting in their personal capacity
- Business contacts outside of this solicitation that the Contracting Entity may have with the Bidder
- Presentations and/or responses to inquiries initiated by the Contracting Entity
- Pre-bid or pre-proposal conferences
- Discussions with The City Procurement Agent, buyer or departmental contact as outlined in the bid packet

If a representative of any Bidder submitting a bid violates the foregoing prohibition by contacting any of these parties, such contact may result in the Bidder being disqualified from the procurement process.

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**ESCALATION/DE-ESCALATION:** Bidder may request a price increase or decrease if the Bidder shows satisfactory proof to the Contracting Entity that a price change is justified and beyond the scope of the Bidder's control. It is understood that any percentage or discount offered to the Contracting Entity will remain firm for the duration of the Pricing Agreement/Contract. However, within 10 days of any approved changes in the price list(s) bid, Bidder may furnish the Procurement Services Division three copies of the new price list(s). New price list(s) will be considered effective the date shown on the price list(s), or 10 days from the date price list(s) are received in the Procurement Services Division, whichever is later. The three copies of the changed price list/catalog may be mailed, e-mailed or hand delivered to:

The City of Oklahoma City  
Procurement Services Division  
Attn: Monica Hardesty, Senior Buyer  
100 North Walker, 2<sup>nd</sup> Floor  
Oklahoma City, OK 73102  
[Monica.Hardesty@okc.gov](mailto:Monica.Hardesty@okc.gov)

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## **BID SPECIFICATIONS**

### **Technical Provisions**

**INTENT:** To obtain pricing agreements for labor and materials to repair and/or install various air conditioning, heating and chiller units for various City departments and Trusts.

- I. Chiller Repair, Replacement, or Installation:** Contractor will furnish labor and materials to repair or install various air conditioning chiller units located in City or Trust owned buildings.
- a. All services accomplished under this pricing agreement shall be performed only by properly trained, qualified, and licensed persons directly employed by the Contractor. Contractors shall provide a list of all manufacturer's brands for air conditioning, heating and chiller units they carry a factory certification on. Contractors must be prepared to provide certification upon request by the City.
  - b. All parts, lubricants, refrigerants, and repairs shall be as manufactured by or recommended by the manufacturer of the unit to be repaired. All materials and parts shall be new, high quality, and designed for the purpose intended. All materials and parts shall be OEM, or if OEM parts are not available, they should be the type that is recommended by the manufacturer of the equipment. Used, factory seconds or other less than new, first quality materials or parts will not be acceptable.
  - c. All repairs shall be made in a neat and workmanlike manner and shall result in a safe, secure job meeting all codes under which the units fall. All repairs shall be completed according to the manufacturers' specifications or recommendations.
  - d. All extraneous parts and materials shall be removed from the worksite upon completion of repairs as well as all oil or other lubricants cleaned from the floors and machinery.
  - e. The successful bidder shall provide good and timely service on a twenty-four (24) hour basis, three hundred sixty-five (365) days a year. Response to a site for service shall not exceed four (4) hours and response time shall begin at the time of notification to the bidder.

It is the Contractor's responsibility to notify the City of any additional problems found during the repair/replacement of the equipment. It is also the Contractor's responsibility to notify the City if additional time is needed for diagnosis of problems with the equipment or system.

- II. Bidder Qualifications:** The bidder shall have been successfully engaged in the business of repair and maintenance of air conditioning chiller units, 250 ton or larger, in the Oklahoma City area for a period of not less than five years. Bidder shall also:
- a. Show evidence of having satisfactorily serviced, maintained, and repaired units of 250 tons or larger by providing a list of five (5) jobs wherein teardown and rebuilding of these units was accomplished within the past three years including persons to contact. A form has been provided in the electronic bidding system to submit reference information.
  - b. Provide written evidence of having access to factory parts on a 24-hour basis. A form has been provided in the electronic bidding system to submit this information.

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- c. Provide evidence of manufacturer's certified factory training of the technicians to be performing the work. This information can be attached in the line item area of the electronic bidding system.
- d. Provide evidence of having in their possession manufacturers' "teardown" manuals for the specific machines to be covered. This information can be attached in the line item area of the electronic bidding system.

**III. Materials and Workmanship:** Contractor shall be highly qualified and trained to work with the particular model units for which coverage is sought.

- a. All services accomplished under this pricing agreement shall be performed only by properly trained, qualified, and licensed persons directly employed by the Contractor. Factory certified training is required for the specific portion of the contract.
- b. All parts, lubricants, refrigerants, and repairs shall be manufactured by or recommended by the manufacturer of the unit to be repaired. All materials and parts shall be new, high quality, and designed for the purpose intended. Used, factory seconds or other less than new, first quality materials or parts will not be acceptable. OEM or factory recommended parts are required for the specific portion of the contract.
- c. All repairs shall be made in a neat and workmanlike manner and shall result in a safe, secure job meeting all codes under which the units fall.
- d. All extraneous parts and materials shall be removed from the worksite upon completion of repairs as well as oil or other lubricants cleaned from the floor and machinery.
- e. The successful bidder shall provide good and timely service on a twenty-four (24) hour basis, three hundred sixty-five (365) days a year. Response to a site for service shall not exceed four (4) hours and response time shall begin at the time or notification to the bidder.

**IV. Air Conditioning and Heating Services:** Contractor shall provide air conditioning and heating services on various makes of air conditioners and heating units of various sizes.

- a. All services accomplished under this pricing agreement shall be performed only by properly trained, qualified, and licensed persons directly employed by the Contractor.
- b. All parts, lubricants, refrigerants, and repairs shall be as manufactured by or recommended by the manufacturer of the unit to be repaired. All materials and parts shall be new, high quality, and designed for the purpose intended. Used factory seconds or other less than new, first quality materials or parts will not be acceptable.
- c. All repairs shall be made in a neat and workmanship manner and shall result in a safe, secure job meeting all codes under which the units fall.
- d. All extraneous parts and materials shall be removed from the work site upon completion of repairs as well as all oil or other lubricants cleaned from the floor and machinery.

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- e. The successful bidder shall provide good and timely service on a twenty-four (24) hour basis, three hundred sixty-five (365) days a year. Response to a site for service shall not exceed four (4) hours and response time shall begin at the time of notification to the bidder.
- f. It is the Contractor's responsibility to notify the City of any additional problems found during the repair/replacement of the equipment. It is also the Contractor's responsibility to notify the City if additional time is needed for the diagnosis of problems with the equipment or system.

V. **Air Conditioning/Heating Units and Equipment Installation Services:** It is the intent of these specifications to obtain air conditioning, and heating installation services. The City of Oklahoma City may require the installation of new air conditioning, heating units, and equipment.

- a. To this extent, the Contractor shall comply with all federal, state and local regulations/codes for the proper installation of air conditioning/heating units, and equipment.
- b. All services provided under this pricing agreement shall be performed only by properly trained, qualified, and licensed persons directly employed by the Contractor.
- c. All parts, lubricants, refrigerants, and repairs shall be manufactured by or recommended by the manufacturer of the unit to be repaired. All materials and parts shall be new, high quality, and designed for the purpose intended. Used factory seconds or other less than new, first quality materials or parts will not be acceptable.
- d. All extraneous parts and materials shall be removed from the worksite upon completion of repairs as well as all oil or other lubricants cleaned from the floor and machinery.
- e. Before any new installation of Air Conditioning or Heating Unit, equipment can be purchased; the respective Department must have final approval of their design and equipment from the General Services Department/Building Management Division.
- f. Successful vendors shall not begin installation of any air conditioning and/or heating units to be installed on any building and/or installations on any City or Trust owned property without first determining that the above paragraph e. has been complied with.
- g. The City or Trusts shall not be held liable for damages incurred whereby prior approval for the installation of new air conditioning/heating unit equipment, has not been first obtained from the General Services Department/Building Management Division.
- h. It is the Contractor's responsibility to notify the City of any additional problems found during the repair/replacement of the equipment. It is also the Contractor's responsibility to notify the City if additional time is needed for diagnosis of problems with the equipment or system.

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**VI. Vendor Compliance:** Contractor shall comply with EPA, OSHA, and other government regulations set forth in the Clean Air Act, along with the following:

- a. Contractor will not, under any circumstances, intentionally vent refrigerant.
- b. Contractor will adhere to the SSD Refrigerant Policy dated 5/29/92.
- c. Contractor will adhere 1989 and ASHRAE Guideline 3-1990.
- d. Contractor will provide their employees with the required education and certification to perform their duties under these regulations.
- e. Contractor will provide their employees with proper equipment and safety apparatus to perform their duties under these regulations.

**VII. Permits/Licenses:** The Contractor must, at his own cost, secure all permits and licenses and pay all fees required by City of Oklahoma City Ordinance or State Statute and give all notices necessary and incidental to the lawful prosecution of the Work.

**VIII. Equipment Rental:**

**If rental equipment is used to perform contracted work for the City of Oklahoma City, the contracted vendor will submit the cost of the rental equipment without markup to the City for reimbursement. A copy of the rental invoice must be included when the invoice is submitted for payment.**

**The City of Oklahoma City reserves the right to verify costs that are invoiced at a cost plus percentage markup by obtaining documentation from the Contractor.**

**Technical questions are to be addressed through the electronic bidding system and the Buyer will respond electronically and issue addenda, if necessary.**

Pricing must be submitted through the Line Item area of the electronic bidding system.

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**PERFORMANCE BOND**

**Project** \_\_\_\_\_  
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**KNOW ALL MEN BY THESE PRESENTS:**

That we \_\_\_\_\_, as Contractor, and \_\_\_\_\_, as Surety, are severally and jointly held and firmly bound unto \_\_\_\_\_, referred to in the Bidding Documents and herein as "Awarding Public Agency" in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), such sum being equal to 100% of the Contract price, for the payment of sum amount, we, and each of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly and severally, firmly to the terms of this Bond by these presents.

**WITNESSETH:**

**WHEREAS**, the Awarding Public Agency has caused to be prepared certain Bidding Documents; has caused Notice to Bidders; and has received bids for the above Project; and,

**WHEREAS**, Contractor, in response to said Notice to Bidders, has submitted to Awarding Public Agency a bid; in accordance with the Bidding Documents; and

**WHEREAS**, the Awarding Public Agency has determined Contractor to be the lowest responsible bidder and has awarded, as stated by the Awarding Public Agency, this Contract for this Project, which Contract is hereby made a part and parcel of this Bond as if literally written herein.

**NOW, THEREFORE**, if the Contractor shall fully and faithfully execute the work and perform said contract according to its terms, conditions, and covenants, and in exact accordance with the Bidding Documents and the Contract Documents, and according to certain plans and specifications heretofore made, adopted, and placed on file in the Office of the City Clerk of The City of Oklahoma City, and shall promptly pay or cause to be paid, all labor, material, equipment and/or repairs and all labor performed on said work, whether by subcontract or otherwise, and shall protect and save harmless the Awarding Public Agency and The City of Oklahoma City and all interested property owners against all claims, demands, causes of action, losses or damage, and expense to life or property suffered or sustained by any person, firm, or corporation by

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reason of negligence of the Contractor or his or its agents, servants, or employees in the construction or provision of said work, or by or in consequence of any improper execution of the work or act of omission or use of inferior materials by said Contractor, or his or its agents, servants, or employees and shall protect the Awarding Public Agency and The City of Oklahoma City harmless from all suits and claims of infringement or alleged infringement of patent rights or processes, then this obligation shall be void; otherwise, this obligation shall remain in full force and effect.

**IT IS FURTHER EXPRESSLY AGREED AND UNDERSTOOD** by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

**IN WITNESS WHEREOF**, the said Contractor has caused these presents to be executed in its name by its duly authorized officer, agent or representative; and the said Surety has caused these presents by its attorney-in-fact duly authorized so to do.

**ATTEST:**

**Contractor:**

\_\_\_\_\_  
(Secretary-Witness) By: \_\_\_\_\_

As: \_\_\_\_\_

**ATTEST:**

**Surety:**

\_\_\_\_\_  
(Secretary-Witness) By: \_\_\_\_\_  
As: Attorney-in-Fact

**REVIEWED** for form and legality.

\_\_\_\_\_  
Assistant Municipal Counselor

**APPROVED** by Awarding Public Agency this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**ATTEST:**

**AWARDING PUBLIC AGENCY**

\_\_\_\_\_  
City Clerk / Secretary

\_\_\_\_\_  
MAYOR / CHAIRMAN

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**STATUTORY BOND**

**Project** \_\_\_\_\_  
\_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:**

That we \_\_\_\_\_, as Contractor, and \_\_\_\_\_, as Surety, are severally and jointly held and firmly bound unto the State of Oklahoma and the subcontractors, suppliers, and materialmen of the Contractor in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), such sum being equal to 100% of the Contract price, for the payment of sum amount, we, and each of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly and severally, firmly to the terms of this Bond by these presents.

**WITNESSETH:**

**WHEREAS**, the Awarding Public Agency has caused to be prepared certain Bidding Documents; has caused Notice to Bidders; and has received bids for the above Project; and,

**WHEREAS**, Contractor, in response to said Notice to Bidders, has submitted to Awarding Public Agency a bid; in accordance with the Bidding Documents; and

**WHEREAS**, the Awarding Public Agency has determined Contractor to be the lowest responsible bidder and has awarded, as stated by the Awarding Public Agency, this Contract for this Project, which Contract is hereby made a part and parcel of this Bond as if literally written herein.

**NOW, THEREFORE**, if said Contractor shall fail or neglect to pay all indebtedness incurred by said Contractor to its subcontractors, suppliers and materialmen who perform work or provided labor, materials, machinery, supplies and equipment in the performance of the Contract, within thirty (30) calendar days after the same becomes due and payable, the person, entity or corporation entitled thereto may sue and recover on this Bond, the amount so due and unpaid up to the amount of this Bond. Upon payments of all indebtedness due said subcontractors, suppliers and materialmen on this Project, this Bond shall become fully satisfied.

**IT IS FURTHER EXPRESSLY AGREED AND UNDERSTOOD** by the parties hereto that no changes or alterations in said Contract and no deviations from the Bidding Documents and the Contract shall have the effect of releasing the sureties, or any of them, from

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the obligations of this Bond.

**IN WITNESS WHEREOF**, the said Contractor has caused these presents to be executed in its name by its duly authorized officer, agent or representative; and the said Surety has caused these presents to be executed by its attorney-in-fact duly authorized so to do.

**ATTEST:**

**Contractor:**

\_\_\_\_\_  
(Secretary-Witness) By: \_\_\_\_\_

As: \_\_\_\_\_

**ATTEST:**

**Surety:**

\_\_\_\_\_  
(Secretary-Witness) By: \_\_\_\_\_  
As: Attorney-in-Fact

**REVIEWED** for form and legality.

\_\_\_\_\_  
Assistant Municipal Counselor

**APPROVED** by Awarding Public Agency this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

**ATTEST:**

**AWARDING PUBLIC AGENCY**

\_\_\_\_\_  
City Clerk / Secretary

\_\_\_\_\_  
MAYOR / CHAIRMAN

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**MAINTENANCE BOND**

**Project** \_\_\_\_\_  
\_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:**

That we \_\_\_\_\_, as Contractor, and \_\_\_\_\_, as Surety, are severally and jointly held and firmly bound unto \_\_\_\_\_, referred to in the Bidding Documents and herein as "Awarding Public Agency" in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), such sum being equal to 100% of the Contract price, for the payment of sum amount, we, and each of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly and severally, firmly to the terms of this Bond by these presents.

**WITNESSETH:**

**WHEREAS**, the Awarding Public Agency has caused to be prepared certain Bidding Documents; has caused Notice to Bidders; and has received bids for the above Project; and,

**WHEREAS**, Contractor, in response to said Notice to Bidders, has submitted to Awarding Public Agency a bid; in accordance with the Bidding Documents; and

**WHEREAS**, the Awarding Public Agency has determined Contractor to be the lowest responsible bidder and has awarded, as stated by the Awarding Public Agency, this Contract for this Project, which Contract is hereby made a part and parcel of this Bond as if literally written herein.

**NOW, THEREFORE**, if said Contractor shall pay or cause to be paid to the Awarding Public Agency all damage, loss, and expense which may result by reason of failed or defective materials and/or workmanship in connection with said work occurring within a period of \_\_\_\_\_ ( \_\_\_\_ ) year(s) from and after acceptance of said Project and work by the Awarding Public Agency, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further agreed that if the said Contractor or Surety herein shall fail to maintain said Project and work against any failure due to defective workmanship and/or material for a period of \_\_\_\_\_ ( \_\_\_\_ ) year(s) and at any time repairs shall be necessary that the cost of making said repairs shall be determined by the Awarding Public Agency or its designees to

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ascertain the same, and if, upon thirty (30) days of notice, the said amount ascertained shall not be paid by the Contractor or Surety herein, or if the necessary repairs are not made, the said amount shall become due upon the expiration of thirty (30) days and suit may be maintained to recover the amount so determined in any Court of competent jurisdiction. And that the amount so determined shall be conclusive upon the parties as to the amount due on this Bond for the repair or repairs included therein, and that the cost of all repairs shall be so determined from time to time during the life of this Bond as the condition of the improvements may require.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the Surety or the Contractor, or either of them, from the obligations of this Bond.

**IN WITNESS WHEREOF**, the said Contractor has caused these presents to be executed in its name by its duly authorized officer, agent or representative; and the said Surety has caused these presents by its attorney-in-fact duly authorized so to do.

**ATTEST:**

**Contractor:**

\_\_\_\_\_  
(Secretary-Witness) By: \_\_\_\_\_

As: \_\_\_\_\_

**ATTEST:**

**Surety:**

\_\_\_\_\_  
(Secretary-Witness) By: \_\_\_\_\_  
As: Attorney-in-Fact

**REVIEWED** for form and legality.

\_\_\_\_\_  
Assistant Municipal Counselor

**APPROVED** by Awarding Public Agency this \_\_\_\_ day of \_\_\_\_\_,  
20 \_\_\_\_.

**ATTEST:**

**AWARDING PUBLIC AGENCY**

\_\_\_\_\_  
City Clerk / Secretary

\_\_\_\_\_  
MAYOR / CHAIRMAN

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**DEFECT BOND**

**Project** \_\_\_\_\_  
\_\_\_\_\_

**KNOW ALL MEN BY THESE PRESENTS:**

That we \_\_\_\_\_, as Contractor, and \_\_\_\_\_, as Surety, are severally and jointly held and firmly bound unto \_\_\_\_\_, referred to in the Bidding Documents and herein as "Awarding Public Agency" in the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), such sum being equal to 100% of the Contract price, for the payment of sum amount, we, and each of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly and severally, firmly to the terms of this Bond by these presents.

**WITNESSETH:**

**WHEREAS**, the Awarding Public Agency has caused to be prepared certain Bidding Documents; has caused Notice to Bidders; and has received bids for the above Project; and,

**WHEREAS**, Contractor, in response to said Notice to Bidders, has submitted to Awarding Public Agency a bid; in accordance with the Bidding Documents; and

**WHEREAS**, the Awarding Public Agency has determined Contractor to be the lowest responsible bidder and has awarded, as stated by the Awarding Public Agency, this Contract for this Project, which Contract is hereby made a part and parcel of this Bond as if literally written herein.

**NOW, THEREFORE**, should the Contractor, during the term of this Defect Bond, timely and expeditiously repair or replace, or cause to be repaired or replaced, any defective, inferior or non-compliant workmanship, work and material regarding or relating to the Project, and should the Surety, at the end of the term of this Defect Bond, pay, or cause to be paid, to the Awarding Public Agency all damages, losses, costs and expenses which directly or indirectly may result from: (1) the untimely repair or replacement of inferior, non-compliant or defective materials, work and workmanship in connection with said Project; (2) the failure to timely and expeditiously maintain, repair or replace same; and (3) the cost and expense incurred by the Awarding Public Agency of any defective, inferior or non-compliant work, material or workmanship repaired, replaced or maintained, timely and expeditiously, by staff and/or third parties, then this Defect Bond shall terminate at the end of the term provided in the Bidding

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Documents; otherwise, this Defect Bond shall remain in effect.

The term of this Defect Bond shall commence upon the formal final acceptance of the entire Project by the Awarding Public Agency as fully and totally complete and shall run for (1) the total number of years as provided in the Bidding Documents for this Project ("term of years"); or (2) until all repairs and replacement of defective, inferior or non-compliant materials, work or workmanship, occurring or discovered prior to the termination of this Defect Bond have been completed and all sums due from the Surety and the Contractor therefore have been paid, whichever is later.

**IN WITNESS WHEREOF**, the said Contractor has caused these presents to be executed in its name by its duly authorized officer, agent or representative; and the said Surety has caused these presents by its attorney-in-fact duly authorized so to do.

**ATTEST:**

**Contractor:**

\_\_\_\_\_  
(Secretary-Witness)

By: \_\_\_\_\_

As: \_\_\_\_\_

**ATTEST:**

**Surety:**

\_\_\_\_\_  
(Secretary-Witness)

By: \_\_\_\_\_

As: Attorney-in-Fact

**REVIEWED** for form and legality.

\_\_\_\_\_  
Assistant Municipal Counselor

**APPROVED** by Awarding Public Agency this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**ATTEST:**

**AWARDING PUBLIC AGENCY**

\_\_\_\_\_  
City Clerk / Secretary

\_\_\_\_\_  
MAYOR / CHAIRMAN

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### Contractor Questionnaire

Show evidence of having satisfactorily serviced, maintained, and repaired units of 250 tons or larger by providing a list of five (5) jobs wherein teardown and rebuilding of these units was accomplished within the past three years including persons to contact.

Company Name:   
Name of Contact:   
Phone Number:   
Description of Service Provided:   
Dates of Service:

Company Name:   
Name of Contact:   
Phone Number:   
Description of Service Provided:   
Dates of Service:

Company Name:   
Name of Contact:   
Phone Number:   
Description of Service Provided:   
Dates of Service:

Company Name:   
Name of Contact:   
Phone Number:   
Description of Service Provided:   
Dates of Service:

Company Name:   
Name of Contact:   
Phone Number:   
Description of Service Provided:   
Dates of Service:

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Provide written evidence of having access to factory parts on a 24-hour basis.

List any exceptions to Section I of the bid specifications – Chiller Repair, Replacement, or Installation:

List any exceptions to Section II of the bid specifications - Bidder Qualifications:

List any exceptions to Section III of the bid specification - Materials and Workmanship :

List any exceptions to Section IV of the bid specifications –Air Conditioning and Heating Services:

List any exceptions to Section V of the bid specifications –Air Conditioning/Heating Units and Equipment  
Installation Services:

List any exceptions to Section VI of the bid specifications –Contractor shall comply with EPA, OSHA, and  
other government regulations set forth in the Clean Air Act:

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(Internal use only)	
PeopleSoft Vendor ID: _____	Entered by: ____
Helpdesk Ticket #: _____	Date: _____

**The Bidder's Name that is entered on the Bid/Pricing Agreement/Contract Form & Non-Discrimination Form should match the Business Name on the Vendor Registration Form**

### VENDOR REGISTRATION FORM

***If you are a single member LLC classified as a Disregarded Entity on your W-9, you MUST provide the owner's SSN or EIN, not the LLC's EIN (see IRS pub 3402).***

Select One:

- NEW DOMESTIC VENDOR** - Attach the most current IRS W-9 form, along with this form; both MUST be filled out in their entirety.
- NEW FOREIGN ENTITY** - Attach the most current, appropriate, IRS W-8 form, along with this form; both MUST be filled out in their entirety.
- UPDATE EXISTING VENDOR** - Attach the most current IRS W-9/W-8 form, along with this form; both MUST be filled out in their entirety.

**SDBE Program: Please select all applicable vendor characteristics:**

- Disadvantaged Business Enterprise DUNS Number (if any)
- Small Business - as defined by the U.S. Small Business Administration
- Women-Owned Business - % Women-Owned / Controlled  %
- Minority-Owned Business - % Minority-Owned / Controlled  % Ethnicity(ies)

If you checked any of the above boxes, please provide a brief description of your business:

If you checked any of the above boxes, do you wish to receive notifications of upcoming contract opportunities?

**Mailing Addresses:**

**PURCHASE ORDERS**

BUSINESS NAME

ADDRESS 1

**PAYMENT REMITTANCE**

BUSINESS NAME

ADDRESS 1

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ADDRESS 2

CITY

STATE

ZIP CODE

CONTACT PERSON

EMAIL ADDRESS

TELEPHONE NUMBER

ADDRESS 2

CITY

STATE

ZIP CODE

CONTACT PERSON

EMAIL ADDRESS

TELEPHONE NUMBER

Do you wish to receive payments by electronic funds transfer?

Any vendor who accepts payment confirms the following: the invoice is true and correct; the work, service or materials as shown by the invoice or claim have been completed or supplied in accordance with the plans, specifications, orders or requests furnished the vendor; and the vendor has made no payment, directly or indirectly, to any elected official, officer or employee of this City, of money or any other thing of value to obtain payment See **62 O.S. § 310.9**.

I certify that the information supplied herein is correct and that neither the applicant nor any person (or concern) in any connection with the applicant as a principal or officer is now debarred or otherwise declared ineligible by a public agency for bidding or furnishing materials, supplies or services, to any other public agency thereof. NOTE: Article IV, Section 11 of the City Charter prohibits employees of the City from having a proprietary interest in City Contracts. See 11 O.S. §8-113.

TYPE NAME OF PERSON AUTHORIZED TO SIGN

TITLE

**BIDDER MUST ELECTRONICALLY COMPLETE AND SIGN THIS DOCUMENT PRIOR TO SUBMITTING INTO THE ELECTRONIC BID SYSTEM**

**Please be aware that typing in your password acts as your electronic signature, which is just as legal and binding as an original signature.**

(See Electronic Signatures in Global and National Commerce Act for more information.)

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## **CONTRACTOR/VENDOR BACKGROUND CHECKS FOR ACCESS TO OR WORK IN CITY AND TRUST BUILDINGS AND STRUCTURES**

The City has established a policy to better secure City and/or Trust owned or operated buildings and structures by requiring background and fingerprint checks of Non-City employees as a condition precedent to entering City and/or Trust buildings and structures. **Contractor/vendor employees and agents who will be required to enter City and Trust buildings and structures to perform a City or Trust Contract will be required to obtain and provide an Oklahoma State Bureau of Investigation background and fingerprint check to the General Service Director or designee before such Contractor/Vendor employee or agent will be permitted to enter City and/or Trust buildings and structures unescorted, at their cost.**

The General Services Director will establish and maintain a list of Non-City employees authorized to enter City and/or Trust buildings and structures. Background and fingerprint records will be maintained by the General Services Department in a secure location within the City's internal network. Said records will be destroyed within sixty days of: 1) final acceptance by the City Council in the case of construction projects, 2) termination or expiration of a procurement pricing agreement, 3) termination or expiration of an engineering, architectural or planner agreement, or 4) termination or expiration of a professional services agreement, unless the Contractor/Vendor has another contractor or agreement. The City reserves the right and authorizes the General Services Director or designee to request and require any such background check be updated and resubmitted. In addition, the Contractor/Vendor acknowledges and agrees that Contractor/Vendor employees and agents will be asked to verify their identity with a government issued picture identification (Driver's License, Passport, Oklahoma issued Identification Card) from the employee or agent's state of residence to enter City and/or Trust owned or operated buildings and structures.

Arrest and/or conviction records may disqualify Contractor/Vendor employees or agents from access or for work in City or Trust buildings and structures.

In addition to the Sex Offenders Registration Act (57 O.S. Section 581 *et seq.*) and the Mary Rippy Violent Crime Offenders Registration Act (57 O.S. Section 591 *et seq.*), the following criteria will be used when reviewing Contractor/Vendor employee or agent requests for building access:

- (a) Any unpardoned felony conviction or plea of nolo contendere may be disqualifying, depending on the nature of the conviction and the relation to the scope of the contract or price agreement, except under the following circumstances:
  - 1. Access to City or Trust buildings and structures is contingent upon successful completion of two (2) years of a deferred or suspended sentence (if the sentence exceeds two (2) years), otherwise, after successfully serving the complete sentence. Applicants must submit two (2) favorable written references, one (1) of which must be from an employer with whom the individual has worked within the last two years. Situations where the applicant is unable to provide a written reference from an employer with whom the individual has worked within the last two (2) years will be reviewed by the General Services Director or designee on a case-by-case basis.
  - 2. Applicants convicted of a felony and ordered to serve time with the Department of Corrections may be eligible for access, depending on the nature of the conviction and the position sought, two (2) years from the date of parole. Applicants must submit two (2) favorable written references, one (1) of which must be from an employer with whom he or she has worked within the last two (2) years will be reviewed by the General Services Director or designee on a case-by-case basis.

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- (b) Any unpardoned conviction(s) involving the following offenses may be disqualifying: moral turpitude; non-consensual sex acts; distribution or trafficking of controlled dangerous substances; assault and battery with a dangerous weapon, or any offense involving a minor as a victim.
- (c) Any applicant who has been convicted of a felony, is a current defendant of a Victim Protection Order (VPO) or has been convicted of a misdemeanor crime of Domestic Violence, will not be considered for facility access. Misdemeanor convictions and traffic violations will be evaluated on an individual basis and may be disqualifying.
- (d) Any applicant with a pending felony or misdemeanor charge (other than minor traffic violations) will be ineligible for access, until a final disposition of the charge is made.
- (e) Any conviction that has been pardoned or expunged cannot be considered in a facility access decision.

If it is determined that information obtained through the applicant's OSBI criminal records check makes the applicant unsuitable for access to City or Trust buildings or structures, the General Services Department will notify the applicant immediately and provide a copy of any criminal record information.

- (a) The applicant will be given seven (7) business days to provide information that negates the validity and relevance of the criminal record. If the information obtained through the criminal records check cannot be invalidated by the applicant, the applicant will be denied facility access.
- (b) In determining an applicant's suitability for facility access, the General Services Department will consider information including, but not limited to the following:
  - 1. Relevance of the crime to the proposed work to be performed.
  - 2. Nature of the work to be performed;
  - 3. Recency of the conviction;
  - 4. Sensitivity of and potential risk to accessible information, systems, or equipment; and
  - 5. Potential risk or threat to City employees.

Upon approval of a contract or agreement by the City Council/Trust, the successful Contractor(s)/Vendor(s) will be required to submit to the General Services Department the following completed documents for **each** employee requiring access to City or Trust buildings and structures to fulfill the terms of the contract or agreement.

- 1. Non-Employee Building Access Request Form – available upon request at (405) 297-2123
- 2. OSBI Criminal History Information Request Portal Response – available at <http://www.ok.gov/osbi/CriminalHistory/CHIRP>

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**Question and Answers for Bid #24613 - AIR CONDITIONING, HEATING, AND CHILLER  
INSTALLATION, REPAIR & REPLACEMENT SERVI**

**Overall Bid Questions**

There are no questions associated with this bid.

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