

REGULAR MEETING

August 14, 2023
6:30 p.m.

MEMORANDUM

G.6 Approve Chiller Replacement Work

Mr. Roberts

RECOMMENDED MOTION: “That the Chippewa Valley Schools Board of Education approve Daikin Applied Americas, Inc., for replacement work for the chillers at Cheyenne Elementary in the amount of \$ 468,330.00.”

RATIONALE: Aggressive pricing was obtained utilizing the OMNIA cooperative program. In accordance with State law and the Board Policy for Cooperative Purchasing (#6440), cooperative purchasing enables this aggregation of purchases from schools nationwide in joint ventures that maximizes value for each dollar spent.

The proposals were reviewed and approved by the Maintenance and Purchasing Offices. This information was reviewed with the Building & Site Sub-Committee on Monday, August 14, 2023, and funding will come from the 2018 Bond Fund.



THERMALNETICS
a member of **DAIKIN** group

Chippewa Valley Schools

Cheyenne Elementary School-Chiller Plant Repairs

Proposed OMNIA Project Agreement

Date:

7/7/2023

OMNIA Certified Proposal #: R200401-MI-281168

Prepared for:

Mr. Ken Hauer

Chippewa Valley Schools

19120 Cass Ave.

Clinton Township, Michigan 48038

Prepared by:

Rick Clouse

734-658-4837

rickc@thermalnetics.com

OMNIA[®]
P A R T N E R S



Executive Summary

Mr. Hauer, thank you for providing Thermalnetics service group with the opportunity to propose a chiller replacement solution to repair operation of the chilled water system located at Cheyenne Elementary School within Chippewa Valley Schools. The existing screw chillers have 3 of 4 compressors failed and the compressor replacement parts are obsolete. Thermalnetics is offering to repair the chilled water system through direct replacements of the existing chillers, with minimal piping modifications to the system.

Repair Solution:

Thermalnetics has identified the following measures to replace the existing McQuay Screw Chiller, with new Daikin Air Cooled Scroll compressor chillers, to restore cooling. Current lead time for built to order equipment is 42-44 weeks from date of a clear and credit approved purchase order.

During the return of school 2023, we are proposing to utilize a rental chiller to provide chilled water per a separate quote. We will disconnect the rental chiller for the winter and apply the rental solution again during the spring season until school is out for summer.

Chiller Replacement

We are proposing to replace your existing McQuay packaged screw compressor, R-22 refrigerant chillers, with new DAIKIN Trailblazer, model AGZ211E, Air Cooled Scroll Compressor Chillers.

The Daikin AGZ Trailblazer chillers offer:

- The MODEL AGZ211E offers a performance of 16.51 IPLV, EER and a nominal 211 tons. (Technical Documents are attached)
- Responsible refrigerants - The Trailblazer chillers utilize R410A
- (2) Circuit configuration, Scroll Compressors

Feel free to contact me if you have any questions or concerns regarding the information contained in this proposal. If you would like us to proceed with the solution presented in this proposal, sign the acceptance line below (including PO# if applicable) and return a copy by fax or mail so that we can begin to mobilize our efforts to complete the repair as quickly as possible. We appreciate the opportunity to provide you with this solution and look forward to working with you on this and other projects in the future.

Sincerely,

Rick Clouse
Sr. Account Manager
Mobile: (734) 658-4837
Thermalnetics a member of Daikin group



Scope of Work

Equipment Included: (Technical Data Attached as proposal Appendix)

(Qty. 2) Daikin Model AGZ211E Trailblazer Packaged Air Cooled Scroll Compressor Chiller:

- 211 Nominal tons/16.51 EER IPLV
- Standard operation 40F-50F LWT (NOT RATED FOR ICE STORAGE)
- 2 Circuit, Scroll Compressors
- Voltage 460/60/3, Single Point Power with Circuit Protection
- Refrigerant- R410a, fully charged
- Unit Starter Type: Across the Line
- MicroChannel Condenser Coil
- MicroTech III Chiller Controller & BACnet® MS/TP communication card for future integration
- Replaceable Filter Dryer with Discharge and Liquid Valves
- Thermal Dispersion, Digital Flow Switch
- 1st -Year Entire Unit Parts and Labor Warranty, 1st year refrigerant warranty
- Extended 4 year compressor parts only warranty, excludes labor

Scope of Work:

- Mobilize tools, parts, and materials to the jobsite
- Prep existing chillers for removal
- Drain and capture glycol from chiller loop, drain loop back to isolation valves
- Recover remaining R-22 refrigerant and oil from chiller and dispose per industry standards
- Remove insulation, disconnect chilled water lines from chillers and remove back to isolation valves
 - Existing three way valve to cold storage to remain and remain isolated
- Disconnect the existing chillers electrical, LOTO while project is in process
 - Existing electrical knife switches will be re-used in place
- Disconnect and label the control wiring inside the chiller controller cabinets
- Deliver new chillers to jobsite, furnish labor, crane and rigging to remove and haul away existing chillers and set new chillers in place on existing housekeeping pads
- New rubber isolators for the chillers will be furnished and installed
- Replace existing isolation valves with new at the chillers
- Complete piping modifications to chilled water lines to accept new chillers, including new strainers on heat exchanger inlet
- Pressure test new piping and refill glycol with previously removed
- Re-Insulate and jacket new and disturbed piping to match existing, we will also repair some insulation spots on the existing that has been previously removed
- Re-connect existing power wiring to the new chillers
- Relocate existing controls wiring, previously labeled, to new chiller controllers and re-terminate
 - If current control system accepts BACnet data points, we will update to current control system
- Remove LOTO and power new chillers, to prep units for OEM start- up
- Perform OEM start up of new chillers
- Prepare and file warranty documentation in our Daikin system.
- Clean up jobsite, remove tools, and materials
- Shipping & Handling, Incoming, and Outgoing freight



Clarifications

- All work referenced in the scope of work will be performed during normal business hours, including crane lift
- Any work, materials, labor or subcontracted services (including engineering) unless specifically provided in the above mentioned scope of work or descriptions, are not included in this proposal.
- Additional Glycol is not included in this proposal and is to be provided by owner
- New pumps are not included in this proposal
- Removal of Hazardous Waste or Asbestos Abatement is not included.
- Repair, replacement, refurbishing or servicing of existing equipment outside of the scope of work is not included (i.e. local disconnect switch, ice storage, three way valve, motor starter, chilled water pumps,).
- Any work associated with the Fire, Life Safety, and Refrigerant Monitoring system is not included.
- No roofing, painting, concrete work or structural is included in this proposal.
- Thermalnetics is not responsible for delay costs incurred due to limited or no access to the building and associated equipment.
- Electrical Installation including labor and materials (conduit, wire, fittings, panels, breakers, etc.) is limited to the electrical work specifically included in this proposal. Switch Gear is not included in this proposal
- Emergency Power is not included in the scope of work.
- Bid Bond, Performance Bond and/or Payment Bonds, unless otherwise noted are not included.
- Control work is limited to scope of work included, control devices, front end replacements, hardware and software updates are not included.
- Temporary or portable cooling equipment is not included.
- Overtime due to project delays, accelerated schedules, unplanned changes/phases or frost laws
- Engineering, structural or otherwise, stamped drawings, or plan changes are not included
- Job specific safety training is not included and will be billed in addition to this proposal.



Thermanlnetics OMNIA Price

The following pricing is per Thermalnetics OMNIA contract number R200401 to execute the services as described in this proposal.

Proposal is in accordance with Region 4 ESC Contract #R200401 available via OMNIA Partners.

\$468,330.00 Four Hundred, Sixty Eight Thousand, Three Hundred Thirty dollars.....plus applicable tax

Notes

- Purchase Orders are to be issued to Thermalnetics
- Pricing is valid for 30 days
- Pricing and acceptance are based upon the Terms and Conditions which are attached.
- Payment due upon receipt of invoice

TERMS OF PAYMENT:

Monthly Progress Billing. Material and equipment furnished under this proposal shall remain the property of the seller until final payment has been received.

Acceptance

Proposal, inclusive of the pricing, is provided in accordance with Region 4 ESC Contract # R200401, available via OMNIA Partners, including the terms and conditions contained therein (<https://public.omniapartners.com/suppliers/daikin-applied/contract-documentation#c38611>) shall govern this Proposal and the corresponding scope of work as described herein which are hereby incorporated by this reference.

Upon execution as provided below, this agreement, including the following pages attached hereto (collectively, the "Agreement"), shall become a binding and enforceable agreement against both parties hereto. Customer, by execution of this Agreement, acknowledges that it has reviewed and understands the attached terms and conditions and has the authority to enter into this Agreement.

Contractor

Signature (Authorized Representative)

Rick Clouse

Name (Print/ Type)

734-658-4837

Phone

7/7/2023

R200401-MI-281168

Date

Proposal #

Customer

Signature (Authorized Representative)

Name (Print/ Type)

Title

Date

PO#

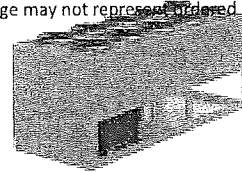


TRAILBLAZER® Packaged Air-Cooled Scroll Chiller

Job Information | Technical Data Sheet

| | |
|------------------|------------------------------|
| Job Name | CVS Cheyenne Elem, Ch1 & Ch2 |
| Date | 6/9/2023 |
| Submitted By | Thermalnetics |
| Software Version | 14.00 |
| Unit Tag | AGZ211E Std |

Image may not represent ordered unit



Unit Overview

| Model Number | Capacity ton | Voltage | Unit Starter Type | ASHRAE 90.1 | LEED Enhanced Refrigerant Management Credit |
|--------------|--------------|----------------------|-------------------|---------------------|---|
| AGZ211E | 189.1 | 460 V / 60 Hz / 3 Ph | Across the Line | '07, '10, '13 & '16 | Pass |

Unit

| | | |
|---|--|---------------|
| Unit Type | Platform | Unit Revision |
| Air-Cooled Scroll Compressor Chiller | Packaged | OB |
| Head Pressure | Tubing | |
| Fantrol Only (32°F Min) | Replaceable Filter Dryer with Discharge & Liquid Valves, no HGBP | |
| Unit Controls | Display | |
| Electronic Expansion Valve | On Controller only | |
| Refrigerant Type | Refrigerant Weight | |
| R410A | 182 lb (per unit) | |
| Pump Controls | | |
| Dual Evaporator Pumps - Dual Control Output | | |
| Approval | | |
| ETL/cETL, AHRI & ASHRAE 90.1 | | |

Evaporator

| | |
|------------------|---|
| Fluid Volume: | 18.0 gal |
| Connection Hand: | Universal Connection - Facing out back |
| Connection Size: | 6.0 in |
| Insulation: | Single Layer Insulation to Suction at each Compressor |

| Entering Fluid Temperature | Leaving Fluid Temperature | Fluid Type | Glycol Concentration | Fluid Flow | Fluid Flow (with glycol) Min / Max | Pressure Drop | Pressure Drop (with glycol) Min / Max | Fouling Factor |
|----------------------------|---------------------------|------------------|----------------------|------------|------------------------------------|--------------------------|---------------------------------------|------------------------------------|
| 56.60 °F | 44.00 °F | Propylene Glycol | 40.0 % | 395.0 gpm | 200.4 / 835.3 gpm | 12.5 ft H ₂ O | 4.50 / 45.7 ft H ₂ O | 0.000100 °F.ft ² .h/Btu |

Note: Evaporator Pressure Drop does not include a strainer. Minimum flow is based on a Variable Flow Pumping System Type and applies to part load conditions only.

Condenser

| | | | |
|--------------------------------|---------------------------------|--------------|------------------------------------|
| Coil Fins: | MicroChannel | | |
| Guards: | Condenser Coil End Louvers only | | |
| Design Ambient Air Temperature | Altitude | Fan Diameter | Minimum Design Ambient Temperature |
| 95.0 °F | 0.000 ft | 30.0 in | 32.0 °F |



Unit Performance

| Design | | | |
|-----------|-------------|------------------|----------------|
| Capacity | Input Power | Efficiency (EER) | IPLV/IP (EER)* |
| 189.1 ton | 227.2 kW | 9.985 Btu/W.h | 16.51 Btu/W.h |

Performance Points rated at AHRI Ambient Relief - with Glycol

| Point # | % Load | Unit | | | Evaporator | | | Condenser | | |
|---------|--------|--------------|----------------|--------------------------|----------------|------------------------------------|-------------------|------------------|----------------|-------------|
| | | Capacity ton | Input Power kW | Efficiency (EER) Btu/W.h | Fluid Flow gpm | Pressure Drop ft. H ₂ O | Entering Fluid °F | Leaving Fluid °F | Ambient Air °F | Altitude ft |
| 1 | 100.0 | 189.1 | 227.2 | 9.985 | 395.0 | 12.5 | 56.60 | 44.00 | 95.0 | 0.000 |
| 2 | 75.0 | 141.8 | 121.4 | 14.01 | 395.0 | 12.5 | 53.40 | 44.00 | 80.0 | 0.000 |
| 3 | 50.0 | 94.53 | 65.50 | 17.32 | 395.0 | 12.5 | 50.30 | 44.00 | 65.0 | 0.000 |
| 4 | 25.0 | 47.26 | 28.74 | 19.73 | 395.0 | 12.5 | 47.10 | 44.00 | 55.0 | 0.000 |

* IPLV reflects AHRI standard rating conditions with water and does not change with user defined conditions

Sound (without insulation)

| Sound Pressure (at 30 feet) | | | | | | | | | | | |
|-----------------------------|-----------|-----------|-----------|----------|----------|----------|----------|-------------|--------------|--------------|--------------|
| 63 Hz dB | 125 Hz dB | 250 Hz dB | 500 Hz dB | 1 kHz dB | 2 kHz dB | 4 kHz dB | 8 kHz dB | Overall dBA | 75% Load dBA | 50% Load dBA | 25% Load dBA |
| 70 | 71 | 70 | 67 | 66 | 62 | 62 | 58 | 71 | 70 | 68 | 67 |

| Sound Power | | | | | | | | | | | |
|-------------|-----------|-----------|-----------|----------|----------|----------|----------|-------------|--------------|--------------|--------------|
| 63 Hz dB | 125 Hz dB | 250 Hz dB | 500 Hz dB | 1 kHz dB | 2 kHz dB | 4 kHz dB | 8 kHz dB | Overall dBA | 75% Load dBA | 50% Load dBA | 25% Load dBA |
| 97 | 98 | 97 | 94 | 94 | 90 | 89 | 85 | 99 | 98 | 96 | 95 |

Octave band is non 'A' weighted and overall readings are 'A' weighted. Sound data rated in accordance with AHRI Standard-370.

Physical

| Unit | | | | |
|---------|--------|--------|------------------|-------------------|
| Length* | Height | Width* | Shipping Weight* | Operating Weight* |
| 283 in | 99 in | 88 in | 8669 lb | 8819 lb |

* Shipping and operating weights are based on 'worst case' unit configuration variations but do not include the weights of any Options or Accessories. Contact Chiller Applications for additional information.



Electrical

| Unit Electrical Data | | | | |
|-------------------------------|--|--------------------|----------------------|-----------------------|
| Voltage | Starter Type | Fan Motor Quantity | LRA Fan Motor (each) | FLA Fan Motors (each) |
| 460 v / 60 Hz / 3 Ph | Across the Line | 12 | 17.8 A | 3.6 A |
| Power Connection Type: | Single Point Disconnect Switch with Circuit Protection | | | |
| Short Circuit Current Rating: | 5 kA | | | |
| Phase Voltage: | Phase & Under/Over Voltage Protection with LED | | | |

| Single Point Power Connection | |
|--|-------------------|
| Minimum Circuit Ampacity (MCA): | 450 A |
| Recommended Overcurrent Protection Size: | 500 A |
| Maximum Overcurrent Protection Size(MOCP): | 500 A |
| Lug Connection Size: | (2) 3/0 - 500 MCM |

| Compressor Electrical Data | | | | | |
|----------------------------|---------------------|-------|--------|-----------------|--------|
| Compressor Type | Compressor Quantity | | | Starter Type | |
| Scroll | 6 | | | Across the Line | |
| Circuit #: | 1 | 3 | 5 | 2 | 6 |
| Compressor #: | 1 | 3 | 5 | 2 | 6 |
| Rated Load Amps (RLA): | 57.2 A | 76 A | 57.2 A | 57.2 A | 57.2 A |
| Inrush Current: | 310 A | 408 A | 310 A | 310 A | 310 A |

Note: Power wiring connections to the chiller may be done with either copper or aluminum wiring. Wire should be sized per NEC and/or local codes. Wire sizing and wire count must fit in the power connection lug sizing listed above. Please contact your local sales office for more information.

Options

| Basic Unit | |
|-------------------------|-------------------------|
| Suction Shut-off Valve: | Included |
| Control | |
| Communication: | BACnet MS/TP |
| Electrical | |
| Water Flow Indicator: | Thermal Dispersion Type |

Warranty

| | |
|-------------------------------|--|
| Unit Startup: | By Others |
| Standard Warranty: | 1st Year Entire Unit Parts & Labor |
| Extended Compressor Warranty: | Compressor Only; extended 4 years parts only (5 Years Total) |
| Refrigerant Warranty: | 1 Year Total |

AHRI Certification



Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org. Unit contains freeze protection liquids in the evaporator and is certified when rated per the Standard with water.

| Performance at AHRI Standard Condition - with Water | | | | | | | | | | |
|---|--------------|----------------|--------------------------|-------------------------|----------------|-----------------------------------|-------------------|------------------|----------------|-------------|
| % Load | Capacity ton | Unit | | | Evaporator | | | | Condenser | |
| | | Input Power kW | Efficiency (EER) Btu/W.h | IPLV, IP* (EER) Btu/W.h | Fluid Flow gpm | Pressure Drop ft H ₂ O | Entering Fluid °F | Leaving Fluid °F | Ambient Air °F | Altitude ft |
| 100 | 197.4 | 230.5 | 10.28 | 16.51 | 472.4 | 10.9 | 54.00 | 44.00 | 95.0 | 0.000 |

Note: Performance with water given as reference only to show compliance with AHRI Standard 550/590. Unit will be configured from the factory to support glycol performance as rated. The unit must not operate with water only without consulting the factory.



| Accessories | |
|-------------|--|
| Optional | |
| Part Number | Description |
| 332325114 | RIS Isolator Kit; AGZ: Packaged, 190-241E; Single Pump 140-180E; Dual Pmp 140-180E |