

## **Building 449 Chiller Replacement**

### **Scope of Work:**

### **Chiller Requirements:**

- Two 300 ton high efficient water Cooled Turbocor chiller
- New chiller will maintain a 45 degrees F +/- 2 degrees F chilled water temperature set point.
- All units will be a High Efficient product of a firm regularly engaged in the manufacture of heating-cooling equipment. The manufacturer will have parts and service available throughout the United States. In addition, manufacturer will test operate all systems at the factory before shipment.
- All electrical will be in accordance with NEC requirements and all materials will be UL approved.
- Chiller will have the standard equipment warranty by the manufacturer which includes materials and labor or diagnostic time at no additional cost to the government. Compressor will have the 5 year warranty.
- Chiller will have the Maximum SEER rating required by the codes and guidelines listed in and as required by codes or guidelines listed in and as required to meet LEED Silver rating requirements and Sustainable Design Energy policy by codes or guidelines.
- Installation of the chiller shall comply with the Factory recommendation and requirement.
- All motors shall be Super High Efficiency with Variable Frequency Drive.
- Create energy efficient building sequence of operation.
- The contractor shall provide a temporary chiller for every day between March 15 and November 30 in which the building chiller system is inoperative.

### **Equipment replacement:**

All Chill water and condenser water circulators.

- All chill and condenser water strainers.

- Air vent separator.
- Cooling Tower VFD.
- Power Distribution System (PDS) with GE brand.
- Replace existing Chillers DDC (Trane Tracer) with Automated Logic.
- Motors shall be Super High Efficiency with Variable Frequency Drive.

### **VAV Terminal Units:**

- Sequence of operation to all VAV's shall be modified to modulating design.

### **Demolition:**

- The installing contractor will recover the refrigerant and refrigerant oil from the chiller and shall dispose of in accordance with the ASHRAE and EPA requirement.
- The installing contractor will disconnect the electrical power to the existing chillers, refrigerant and chill water piping.
- All existing opening thru the wall shall be patched using the same materials to match the existing wall.
- The installing contractor shall dispose all unwanted materials properly off the Government premises.

### **Installation:**

- Two 300 ton water cooled chiller heavy duty spring or rubber pad will be used to absorb the vibration that may be caused by the chiller during start up.
- The installing contractor will reconfigure the chill water piping to fit into the new chiller.
- All new chill water piping will be insulated using the same materials to match the existing insulation.
- Low pressure refrigerant piping will be insulated using one inch thick fiber glass thick insulation.
- The new chiller will be set up to operate year round.
- The installing contractor will provide point to point factory start up by Manufacturer certified technician and set the correct GPM/ton and the correct Delta T across the evaporator chill water bundle.

- Certified (TAB) Testing and Balancing Technician will balance the chill water flow to the new chiller to achieve the designed GPM flow to the evaporator bundle per Manufacture designed GPM and shall perform air balancing throughout the building.
- Manufacture Certified Technician shall perform the startup of the new chiller.

**Chiller Schedule Set Point:**

- The Chill Water temperature Set Point will be set for 45 degrees F.
- AHU Supply discharge air Temperature Set Point will be 50 degrees F.
- Building schedule will be determined by NAC.

**Training:**

- Eight hour onsite training of the new (BAS) Building Automation and Chiller operation will be provided by the Manufacturer certified instructor.

**Electrical:**

- Electrical main circuit breaker will be replaced to match the requirement of the new chiller circuit breaker per manufacturer requirement.
- Electrical main load conductor wire will meet or exceed the manufacture requirement.
- Electrical installation will meet or exceed the local and national (NEC) National Code Requirement.

**Mechanical:**

- Mechanical installation shall meet or exceed the National and Local Code requirements.

**NOTE:** Smoke detector will stay the same as from the original sequence of operation.

**Submittal:**

- The installing contractor is required to submit (4) four copy of the final submittal to the Government, to include Mechanical, Electrical drawings, DDC control and sequence of operation.

Warranty:

- To include labor, materials and diagnostic trouble shooting time to be covered for (1) one year at no additional cost to the government upon acceptance of the job.

### **LIQUIDATED DAMAGES – CONSTRUCTION: (SEP 2000)**

- If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \_\_\_\_\_ (The amount will be determined by the Government Contracting official) for each calendar day of delay until the work is completed or accepted.
- If the Government terminates the Contractors right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of purchase under the termination clause. (End of Clause)

(FAC 97-19, 65 FR 46052, 7/26/2000, effective 9/25/2001).

#### Working Hours;

Work shall be performed during normal working hours. Normal working hours are from 0800 – 1600 or as instructed by the OIC Monday through Friday, with the exception of government holidays there will be no work scheduled. A formal request can be submitted to the inspector so arrangements can be made to work outside normal working hours.

#### Hazardous Materials:

- Removal and Disposal hazardous materials shall comply with all local, state and federal regulations.
- Installing Contractor shall stop work and notify the Government Officer in Charge (OIC) whenever hazardous material are discovered or suspected to be hazardous materials.

#### Material Safety Data Sheets: (MSDS)

The contractor shall submit copies of the MSDS sheets for all materials being used on the project to the Contract Surveillance Representative of the Public Works Department, code 805, so they can be forwarded to the Naval SUBASE Consolidated Hazardous Material Reutilization and Inventory Management Program Center, (CHRIMP).

The contractor shall write the following information at the top of each MSDS:

- Quantity of material onboard SUBASE **N/A**
- Size of container (**Example:** 5 gal cans, 5 lbs bags etc...)
- Type of container (**Example:** metal can, plastic can, plastic bag, etc...)

The contractor shall inventory materials once a week for the duration of the project.

The inventory sheet will be provided by CHRIMP after receiving the MSDS sheets.

The contractor shall provide the amount of material used on the inventory sheet and return it to the QAE, to be turn over to CHRIMP.

The contractor will remove all unused materials from the project site upon completion. No material shall be left behind unless specified. If material is left without direction from the CSR or FMFS the contractor must return and pick material up prior to invoicing.

**Material Specifications:**

**Energy consuming acquisitions must be ENERGY STAR or Federal Energy Management Program (FEMP) listed and shall meet FAR clause [52.223-15](#), Energy Efficiency in Energy-Consuming Products requirements. Subase New London promotes the use of Environmentally Friendly products and the Greening of the Government.**

**Contractors shall follow the Safety and Health Requirement Manual (EM 385-1-1) when performing work orders on Government Premises.**

