

STATEMENT OF WORK

FOR

DESIGN-BUILD

FTFA 24-FP12 Replace AHU's and Piping in Telemag Area, BLDG 380

22 November 2024

STATEMENT OF WORK: This project is for the design-build of the removal and replacement of Hydronic piping and the removal and replacement of the Computer Room Air Conditioner (CRAC) units. The existing hydronic piping serving the data center CRAC units have been known to leak and have multiple patches and repairs. The CRAC units have reached end of life expectancy and must be removed and replaced. This work in part shall include all but is not limited to mechanical, electrical, structural, and plumbing. The specifications for each discipline shall be discussed below. The contractor is responsible for providing all services, equipment and tools, material, labor, supervision, transportation, Architectural/Engineering services and any other professional services necessary to accomplish this project with a complete and useable product.

PERIOD OF PERFORMANCE (POP): 270 Calendar Days.

This period of performance shall cover both the design and construction phase of this project. It shall be on the discretion of the contractor to divide this POP accordingly. This period of performance includes potential long lead times for the CRAC units, design, and construction.

This design-build intends to have a basis of design for the CRAC units during the early stages (35% or 65%) of the design phase. The Government expects the CRAC units to be ordered well ahead of the construction period.

GENERAL DESCRIPTION: This design-build project is for BLDG 380 Eglin AFB Data Center. The Data Center are two adjacent rooms with a separation wall approximately square footage of 900 sq. ft. and 3600 sq. ft. The smaller area is served by two (2) CRAC units and the larger area is served by five (5) CRAC units. The CRAC units are hydronic systems and is served by the building centrifugal chillers. The data center is a raised floor with downflow configuration. The CRAC units are centrally fed from the chiller plant, however, there are two (2) Hydronic loops with four (4) and three (3) CRAC units on each loop. One loop main is suspected to be 4" and the other loop main is suspected to be 6". There are no reliable existing as built for the CRAC units and piping serving the Data Center. Measurements and count are to be field verified by the contractor. A field drawing shall be included in this package; however, this sketch shall only be used for planning, scoping and estimating purposes. The contractor shall be responsible for any design and construction requirement for this design-build project.

PHASING: The building will remain operational during this project, additionally, the data center shall also remain operational. Limited total cooling shut down allowed (no longer than a weekend). As part of the design, the contractor shall include a phasing plan that shall be reviewed and approved by the

Government. This phasing plan shall include the amount of CRAC units that are operational and the hydronic line that is affected.

CONTRACT REQUIREMENT: The following CLINS are required for the Contractor's Proposal.

CLIN 001: Engineering design services for mechanical/electrical load calculations, phasing and mechanical/electrical design for the CRAC units serving the data center.

CLIN 002: Construction services. Removal of existing and installation of new hydronic piping for all 7 CRAC units to include but not to be limited to all the chilled water and hot water piping within the area of work, removal of existing and installation of new electrical to support the new CRAC units, removal of existing and installation of new CRAC units and all incidental work associated with CLIN 001 and CLIN 002.

1. DEMOLITION

- 1.1 The contractor shall remove all the chill water loop within the area of work. The extent of demolition shall be to the adjacent mechanical room and the optimal location for the new isolation valve that shall serve all seven (7) CRAC units.
- 1.2 The contractor shall remove the hot water loop. The extent of demolition shall be to the adjacent mechanical room or adjacent office area. The new CRAC unit shall have electric heat/reheat, the hot water loop shall be valved and stubbed.
- 1.3 The contractor shall remove and replace in its entirety the existing seven (7) CRAC units and all the incidental work.
- 1.4 The contractor shall identify unused breakers and remove conduits and wiring on Electrical Panel "PA" all the way to the load which the circuit serves, this is in lieu of preparing and making space for the new circuits to be utilized and installed for the new CRAC units. For scoping and estimating purpose, account for 300 linear feet of wiring and conduit per breaker and a total 7 breaker. A panel directory shall be included in this package. If a conduit is physically impossible to be removed, portions are allowed to be abandoned in place upon the approval of the Government. Contractor to confirm that the electrical circuit is abandoned and no longer utilized.
- 1.5 The contractor shall coordinate shutdowns or outage of any kind to the Government no later than fourteen (14) days **PRIOR** to anticipated event. **TOTAL** Interruption to the cooling of the data center shall be no longer than three (3) calendar days, preferably over the weekend. During lower mission operations, the data center can tolerate partial shuts downs (e.g. 1 CRAC unit off on the smaller section and 2 CRAC unit off on the larger section).
- 1.6 The contractor shall collect and maintain control of all construction debris to include demolished items. All trash/dumpster for this project shall be removed/emptied from Eglin AFB at a reasonable time or as requested by Government.
- 1.7 The laydown area shall be identified by the Government. Laydown areas can be increased per the request of contractor; this needs to be addressed with the Government at the earliest instance and will have to be reviewed and approved by the Government.

2. MECHANICAL

- 2.1 The contractor shall install NEW Hydronic chill water loop for all seven (7) CRAC units and all incidental components.
- 2.2 The contractor shall install all seven (7) CRAC units and all incidental components.

- 2.3 The contractor shall install all electrical required for the seven (7) CRAC units.
- 2.4 The contractor shall install an isolation valve for the CRAC hydronic loop. This shall be in an accessible and inspectable location.
- 2.5 The contractor shall install condensate piping as required by the design.

3. STRUCTURAL

- 3.1 The Contractor A/E shall make all necessary structural alteration as required by this SOW if applicable.
- 3.2 Holes/gaps resulting from demolition of electrical and/or mechanical equipment are to be repaired to match existing.

4. ELECTRICAL/COMM

- 4.1 Provide the electrical design, electrical design analysis calculations, and electrical specifications as required by the mechanical alterations required by this Statement of Work (SOW).
- 4.2 Alter the electrical system as required to accommodate the mechanical alterations required by this SOW.
- 4.3 The Electrical Design Engineer shall be responsible for obtaining any existing As-built drawings. The Electrical Engineer shall be responsible for the following requirements:
 - a. Requests for as built to be obtained from 96 CEG/GIO - requests can be made here:
 - i. [https://usaf.dps.mil/sites/21424/96CEG/CEN/SitePages/GIO\(1\).aspx](https://usaf.dps.mil/sites/21424/96CEG/CEN/SitePages/GIO(1).aspx)
 - b. The work shall include original contract drawings and technical specifications. The Electrical Engineer shall investigate the existing site conditions and perform all necessary design analysis and calculations as required. A design analysis consisting of a copy of the Engineer's notes and calculations shall be submitted in an organized, readable format.
 - c. Arc-flash calculations shall be performed during design for all new electrical disconnects.
 - d. The new CRAC units shall be fed from existing Panel "PA". New wiring, breakers and disconnects shall be installed.
 - e. In addition to normal design review conferences and construction conferences, coordination conferences may be held from time to time as required by the Contractor or the Air Force. The contractor may request such conferences when it is deemed necessary by both parties to clarify the work or expedite the preparation of plans and specifications. The Contractor shall be responsible for making memoranda for record of any conversations and minutes of any meetings with Government personnel concerning this project. The Contractor shall forward one copy of these memoranda/minutes to each party concerned and one copy to the Government.
- 4.4 For scoping and estimating, panel "PA" shall serve the NEW CRAC units. The panel is a 208VAC/1200 A panel. This panel is located on the mechanical room adjacent to the Data Center. This shall be confirmed during the design process.

5. TESTING/COMMISSIONING

- 5.1 Testing and commissioning plan shall be provided to the Government. Contractor shall provide the authorized start-up checklist per manufacturer recommendation and the government shall witness. A manufacturer representative shall be present for start-up. A final commissioning

report shall be provided to the Government to include all documents identified in this SOW and all documents related to contractor warranty and manufacturer warranty.

5.2 Contractor shall perform an operational test of the CRAC units for at least one operational cycle for final commissioning.

- a. Thermostat to operate and cycle CRAC in cooling mode.
- b. Thermostat to operate and cycle CRAC in heating mode.
- c. Thermostat to operate and cycle CRAC in dehumidification mode.
- d. Thermostat to operate CRAC in continuous vent mode.

5.3 Any alarms or faults within the first 72 hours shall be documented in the commissioning report. This shall include the most likely cause of the alarm/fault and the corrective action taken. If a fault does occur during the commissioning period, the government holds the right to reset this 72-hour period.

5.4 Additional testing and commissioning requirements outside of manufacturer requirements can be developed by the contractor.

5.5 The contractor shall provide a detailed construction schedule to include the task, task duration, and number of CRAC units OFF.

6. DELIVERABLES

6.1 The contractor shall provide the Government a design schedule to include design days and government design review days, and design review meetings.

6.2 Provide a design, design analysis, and specifications.

6.3 Send all digital (PDF Version) submissions via DOD Safe (<https://safe.apps.mil/>) to jethro.perez.2@us.af.mil

6.4 Send all hard copy and CDROM to:

Jethro Perez
96 CEG/CENMP
ROOM 106, BLDG 634
Inverness Road
Eglin AFB, FL 32542

6.5 Milestone submittals are defined as 35% design submittal, 65% design submittal, 95% design submittal, and Final submittal. Each milestone submittal shall include:

- a. ONE PDF version set sent via DODsafe.
- b. TWO half-size (12"x18") sets of Drawings.
- c. TWO Printed copies of 50 Division Cost Estimate, Design Analysis, and Specifications.
- d. ONE CDROM with the PDF version of Drawings, Specification, 50 Division Cost Estimate, Design Analysis and CAD native files.

6.6 The contractor shall facilitate onsite review meetings. The A&E shall record and submit meeting minutes to the Government two business days after every milestone review meeting. This shall be scheduled with the Government.

6.7 DRAWING AND SPECIFICATION NUMBER for this project is **24AQ**. Include this number on all drawing and specification sheets.

6.8 The drawings shall include the “type of sheets” shown below and any other applicable sheets as required for a complete design. The sheets shall be submitted to the Government for review and approved or disapproved as deemed appropriate. All contract drawings to be completed and accomplished in accordance with the best of professional practices to show clearly and concisely the type and extent of work to be performed to provide the government a “turn-key” system.

- a. Title Sheet
- b. General Notes, Legends, Abbreviations
- c. Reservation Map
- d. Phasing Plan
- e. Existing Site Plan
- f. Existing and New Architectural sheets as required.
- g. Existing and New Mechanical as required.
- h. Existing and New Plumbing as required.
- i. Existing and New Electrical as required.
- j. HVAC Zoning Sheet
- k. HVAC Hydronic Diagram
- l. Existing Power Riser
- m. New Power Riser
- n. Miscellaneous Details, Risers, etc. as required.

7. GUIDELINES

7.1 Comply with current applicable state, local, & federal building codes as well as codes from other recognized authoritative bodies; including, but not limited to Eglin Design Manual, American National Standards Institute (ANSI), American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), International Building Code (IBC), NEC, UFC, NFPA, National Standard Plumbing Code (NSPC), OSHA (Occupational Safety and Health Administration), and Sheet Metal and Air Conditioning Contractors’ National Association (SMACNA). If there is a conflict in regulation, the more stringent shall apply.

7.2 All items mentioned in this statement of work shall be inspected and up to the standard of the Government.

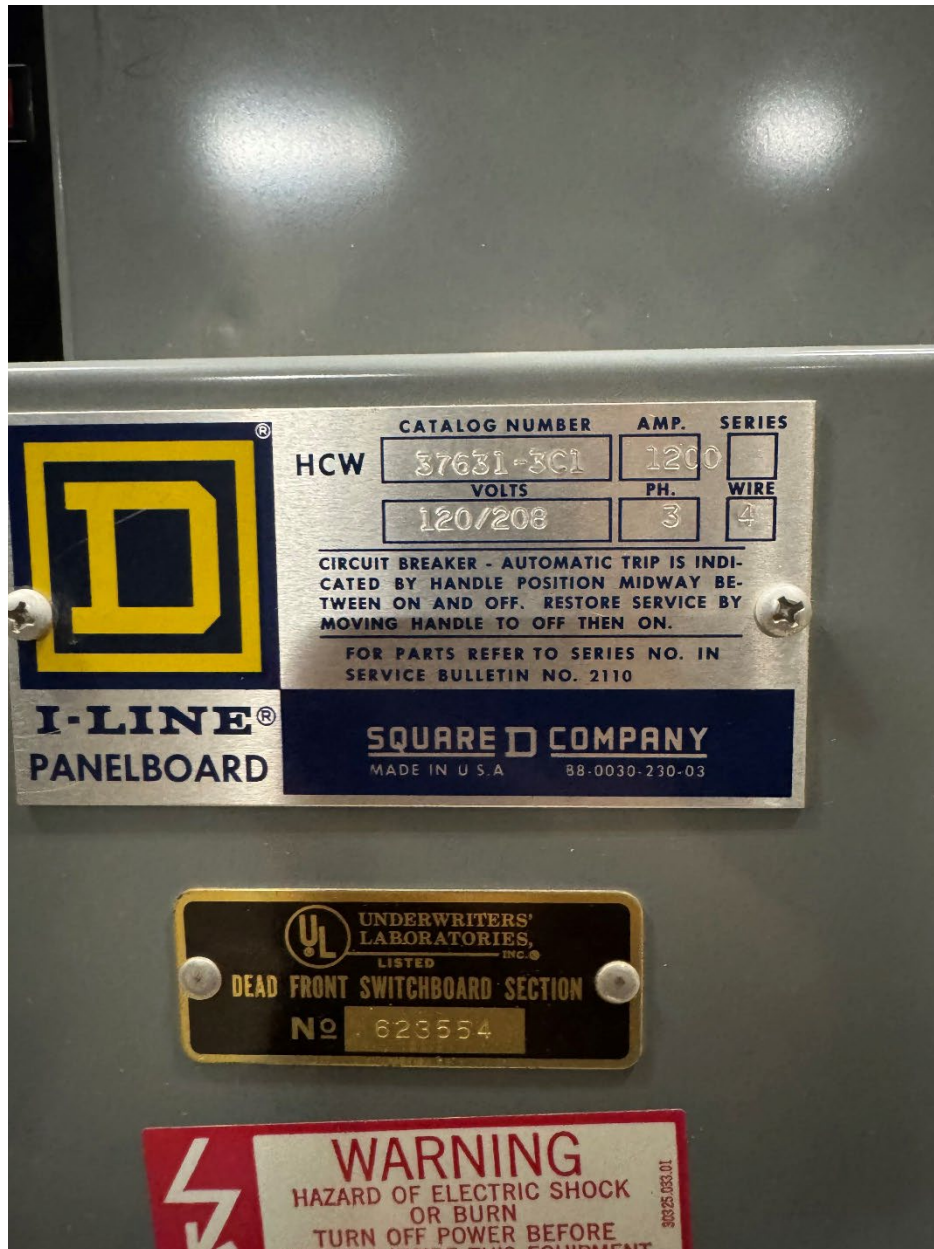
7.3 Contractor shall be responsible to repair any damage to the curbing, road, grounds, or Eglin facility if it’s the result of their action. The repair shall be equal to or better than before.

7.4 Upon completion of work, the site must be in clean, neat, and orderly condition. This will be inspected and up to the standard of the Government.

7.5 The count, dimensions, and measurements provided are an approximation for scoping purposes. The contractor shall field verify for exact count, dimensions, and measurements.

8. APPENDIX

8.1 PANEL PA



PANELBOARD PA
120/208 V. 3 PH. DATE:

FED FROM PANEL

CIR. | LOAD DESCRIPTION

1 Panel LA

2 Panel LI

3 Panel LK

4 Panel LJ

5 Panel LM REMOVED

6 Panel ~~LB~~ SP REMOVED

7 Panel LN REMOVED

8 Panel LG

9 Panel LC REMOVED

10 Panel LD REMOVED

11 Panel LE REMOVED

12 Panel LF REMOVED

13 Panel LO - REMOVED

14 PANEL FP (RM 262)

15

16

17

18

19

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21

SQUARE D COMPANY
LEWISTON, KY. MADE IN U.S.A.



ALL EXTERIOR DOORS:

1. REMOVE, PROTECT AND RE-ATTACH THE EXISTING IDS TO NEW DOORS AND FRAMES.
2. IF EXISTING DOOR IS FIRE RATED, NEW DOOR SHALL MATCH THE EXSITING FIRE RATING

KEYNOTES:

(THIS SHEET ONLY)

- 1 REMOVE EXISTING DOOR AND FRAME AND PREP OPENING FOR NEW DOOR AND FRAME.
- 2 PROVIDE NEW BLAST AND WIND RATED INSULATED HOLLOW METAL DOOR AND FRAME.
- 3 PROVIDE NEW BLAST AND WIND RATED INSULATED OVERHEAD COILING DOOR AND FRAME.
- 4 REMOVE EXISTING LOUVER AND FRAME AND PREP OPENING FOR NEW LOUVER AND FRAME.

SYMBOLS

13 DOOR NUMBER SYMBOL

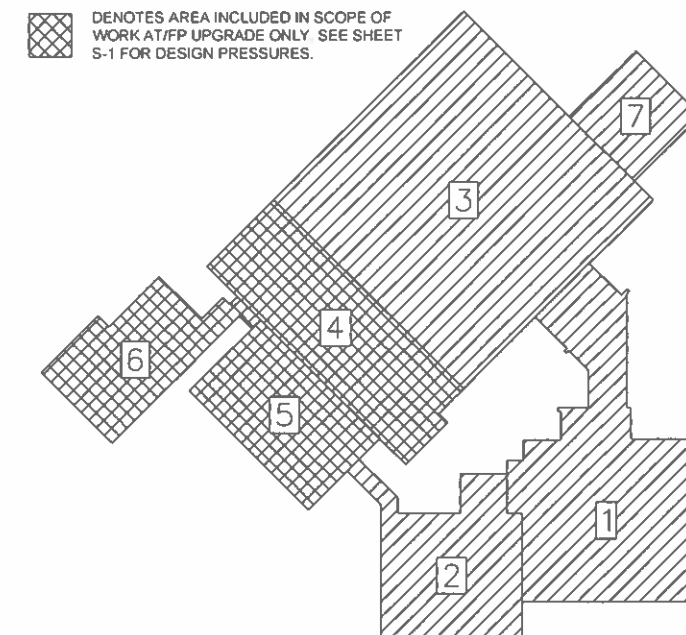
17 MECHANICAL LOUVER SYMBOL

C1 CURTAIN WALL SYMBOL

LEGEND

DENOTES AREA INCLUDED IN SCOPE OF WORK FOR HURRICANE STRENGTHENING AND AT/FP UPGRADE SEE SHEETS S-1 AND S-5 FOR DESIGN PRESSURES.

DENOTES AREA INCLUDED IN SCOPE OF WORK AT/FP UPGRADE ONLY SEE SHEET S-1 FOR DESIGN PRESSURES.



KEY PLAN

SCALE: N.T.S.

	04APR16	AS-BUILT	STOA	ACT
1C	14OCT15	MISCELLANEOUS CHANGES	STOA	ACT
1B	09JUN15	ADDITIONAL STRUCTURAL CHANGES	STOA	ACT
REVISION	DATE		BY	APPRO'D

BASE CIVIL ENGINEER
EGLIN AIR FORCE BASE, FLORIDA

DATE	SIGNATURE	APPROVED	CEPD	DRAWN BY	PBB	PROJ. ENGR.	PDM	TITLE	HURRICANE SHELTER UPGRADES AT BLDG. 380
								CONTENTS	FIRST FLOOR PLAN
								APPROVED	DATE
								96 CEG/CEP	19 OCT 2012
								APPROVED	SCALE
								BASE CIVIL ENGINEER	AS NOTED
SPEC. NO.	12BF	PROJ. NO.	FTFA 11-1192	DRAWING NO.	12BF	FILE NO.			SHEET 13 OF 30

ALL EXTERIOR DOORS:

1. REMOVE, PROTECT AND RE-ATTACH THE EXISTING IDS TO NEW DOORS AND FRAMES.
2. IF EXISTING DOOR IS FIRE RATED, NEW DOOR SHALL MATCH THE EXTING FIRE RATING.

DOORS 11 AND 12 (IN AREA 1, NOT SHOWN ON THIS SHEET): NEW DOORS SHALL BE FIRE RATED TO MATCH EXISTING.



FIRST FLOOR PLAN

SCALE: 1/16"=1'-0"