Scope of Work for Repair HVAC, Ops, RIOC, B2929

DPW Project Number: 44510
Fort Benning Building Number: 2929
Period of Performance: 390 days
Job Walk: TBD
Proposal Due: TBD
Bid Process: MATOC

Submissions by DPW

1. Scope of work
2. Conceptual design drawings
3. Construction specifications
4. As-built PDF/DWG/DGN – When available

Submittals from Contractor

1. Project Schedule
2. Schedule of Values (SOV)
3. QC Plan
4. Accident Prevention Plan (APP)/Safety Plan
5. Environmental Protection Plan (EPP)
6. Materials/Equipment
7. Design Drawings/As-Built Drawings
8. Specifications
9. Testing/Adjusting/Balancing/Commissioning Reports
10. CD with all Record Document Submittal Documentation

Existing Building 2929 Data

Built: 2008
Story: 1 story
Building area: 7848 SF
Sprinkler system: NFPA 13
Fire alarm system: Yes

Scope of Work

The objective of this mechanical scope is to replace the aging and insufficient package unit, redesign the return to evenly account for videowall heat load and new zones, and redesign the floor supply diffuser system with VAVs to account for the 4 separate zones, (R109 area near video wall), (R109 area behind operable partition wall), (R109A), (R109A Conference Room). In addition, all new and existing HVAC devices are to be brought onto the utility monitoring and controls system (UMCS). The building will be occupied. Include the laydown area within the limits of construction. These buildings will have restricted access and coordination with users will be necessary throughout the project. The following scope states the key objectives that must be met. Ensure field changes meet all the necessary codes/standards.

Scope of Work for Demo in 2929

1. Mechanical Demolition
    a. Remove existing 20ton Johnson Controls package unit.
    b. Remove existing HVAC controls.
    c. Remove floor diffusers needed for VAV floor diffusers.

Scope of Work for New Work in 2929

1. Mechanical New Work
    a. Size (0.4% ASHRAE design day, indoor 68° summer, 78°winter, RH50%), accounting for sound attenuator and security barrier losses in duct work, provide and install the following:
        i. New Heat Pump Package Unit
            1. Implement a demand control ventilation (DCV) strategy for outside air.
            2. The unit shall be equipped with direct drive blowers.
            3. Variable speed supply capable of working with VAV system.
        ii. Redesign return air ductwork with additional diffusers to evenly return space, with additional emphasis on the area near videowall and the 3 other zones.
        iii. Resize underfloor supply with Élan-08R-720-DV-FF (Thermostatically Controlled VAV Personal Comfort Diffusers) (or equivalent) sized, grouped, and paired to thermostats to cool the 4 zones, (R109 area near video wall), (R109 area behind operable partition wall), (R109A), (R109A Conference Room).
        iv. JACE 9200
            1. Size provide and install non-proprietary open JACE 9000 series. The total number of device/points used shall not exceed 80% of installed JACE9000 series capacity.
            2. Any new JACE installation shall be supported by uninterrupted power supply (UPS) and be protected with (TSS).
        v. BACnet controls for
            1. All new and existing equipment, (AHU, CRAC, Mini-Splits, Split Systems, and exhaust fans. Control points shall be brought into the Niagara 4 server at the UMCS.
    b. Provide, install, and integrate into the UMCS, communicating thermostats for all new and existing equipment, equipped with
        i. Lockable touch screen interface thermostats to be set and locked to a range of 68°F-78°F.
        ii. CO2 Sensor
        iii. Humidity Sensor
        iv. PIR sensors w/occupancy functions enabled at 55°F and 80° after 8hrs no motion.
        v. Include all available control points, to include, but not limited to temp, room humidity points, CO2, occupancy, etc. in UMCS graphics.
        vi. BACnet MS/TP
    c. Provide all necessary trade work in support of mechanical.
    d. All hard piping (domestic, heating, and chilled) and conduit shall be installed in a workmanlike manner at typical angles of 45° and 90°.

e. Assume no Fort Benning base maintenance controls support or as-built drawings. If controls or drawings support is approved, provide a minimum of 2 weeks of notice of when you will need Fort Benning controls support.
f. Adjust airflow for each space to achieve ASHRAE recommendations for CFM by room type.
g. Equip outside condensers with hail guards wherever there is an unobstructed path to areas where groundskeeping occurs.
h. All refrigerant connections shall be nitrogen purged brazed joints.
i. All available control points for devices, equipment, and controllers, both new and existing, shall be fully integrated into the UMCS and have their graphics designed per Fort Benning's most recent "Graphics and Programming Standards".
j. Graphics integration shall be brought onto the building JACE, and finally at Fort Benning's UMCS Building 497 through the N4 server. The final "master system integration" (From Bldg. JACE to N4 Server) will require a DoD 8570 IAT Level II credentialed person with access to the server. Coordinate with NEC for CAT5 drops, ports, IP/mac address, and switch installations.
k. All controls shall be BACnet MS/TP (not over IP)
l. Provide temporary heating/cooling if building HVAC will be down longer than 8hrs.
m. Provide user level training on thermostats and UFAD system.
n. Provide O&M level training on all new equipment.

CODES AND STANDARDS:

All work shall be completed in accordance with the most recent editions of all applicable codes and standards published at the time of the contract award including, but not limited to:

United Facilities Criteria (UFC)

General

1. UFC 1-200-01 DoD Building Code, with Change 1
2. UFC 1-200-02 High Performance and Sustainable Building Requirements
3. UFC 1-300-01 Criteria Format Standard
4. UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard, with Change 3
5. UFC 1-300-07A Design Build Technical Requirements
6. UFC 1-300-08 Criteria for Transfer and Acceptance of DoD Real Property, with Change 2
7. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings

Mechanical

1. UFC 3-400-02 Design: Engineering Weather Data
2. UFC 3-401-01 Mechanical Engineering, with Change 1
3. UFC 3-410-01 Heating, Ventilating, and Air Conditioning Systems, with Change 8
4. UFC 3-410-02 Direct Digital Control for HVAC and Other Building Control Systems, with Change 2
5. UFC 3-430-01FA Heating and Cooling Distribution Systems
6. UFC 3-450-01 Noise and Vibration Control
7. UFC 3-470-01 Utility Monitoring and Control System (UMCS) Front End and Integration

Fire Protection

1. UFC 3-600-01 Fire Protection Engineering for Facilities, with Change 6

2. UFC 3-601-02 Operations and Maintenance: Inspection, Testing, and Maintenance of Fire Protection Systems; download and print Warning Sign

United Facilities Guide Specifications (UFGS)

DIVISION 01 - GENERAL REQUIREMENTS

1. UFGS 01 42 00 SOURCES FOR REFERENCE PUBLICATIONS

DIVISION 02 - EXISTING CONDITIONS

1. UFGS 02 41 00 DEMOLISION AND DECONSTRUCTION

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING

1. UFGS 23 01 30.41 HVAC System Cleaning
2. UFGS 23 03 00.00 20 Basic Mechanical Materials and Methods
3. UFGS 23 05 15 Common Piping for HVAC
4. UFGS 23 05 48.00 40 Vibration and Seismic Controls for HVAC Piping and Equipment
5. UFGS 23 05 93 Testing, Adjusting, and Balancing for HVAC
6. UFGS 23 07 00 Thermal Insulation for Mechanical Systems
7. UFGS 23 08 00.00 20 Commissioning of Mechanical [and Plumbing] Systems
8. UFGS 23 09 00 Instrumentation and Control for HVAC
9. UFGS 23 09 13 Instrumentation and Control Devices for HVAC
10. UFGS 23 09 23.02 BACnet Direct Digital Control for HVAC and Other Building Control Systems
11. UFGS 23 09 33.00 40 Electric and Electronic Control System for HVAC
12. UFGS 23 09 53.00 20 Space Temperature Control Systems
13. UFGS 23 09 93 Sequences of Operation for HVAC Control
14. UFGS 23 23 00 Refrigerant Piping
15. UFGS 23 30 00 HVAC Air Distribution
16. UFGS 23 31 13.00 40 Metal Ducts
17. UFGS 23 34 23.00 40 HVAC Power Ventilators
18. UFGS 23 36 00.00 40 Air Terminal Units
19. UFGS 23 37 13.00 40 Diffusers, Registers, and Grills
20. UFGS 23 41 13.00 40 Panel Filters
21. UFGS 23 54 19 Building Heating Systems, Warm Air
22. UFGS 23 72 00.00 10 Energy Recovery Systems
23. UFGS 23 74 33.00 40 Packaged, Outdoor Heating and Cooling Makeup Air-Conditioners
24. UFGS 23 81 00 Decentralized Unitary HVAC Equipment
25. UFGS 23 82 16.00 40 Air Coils
26. UFGS 23 82 19.00 40 Fan Coil Units
27. UFGS 23 82 23.00 40 Unit Ventilators

International Code Council (ICC)

1. 2024 International Building Code (IBC)
2. 2024 International Existing Building Code (IEBC)
3. 2024 International Mechanical Code (IMC)
4. 2024 International Fire Code (IFC)
5. 2024 International Energy Conservation Code (IECC)

National Fire Protection Association (NFPA)

1. NFPA 70 National Electric Code
2. NFPA 13 Automatic Sprinkler Systems

Miscellaneous Codes and Requirements

1. American with Disabilities Act (ADA) Compliance Guide
2. Fort Benning Installation Design Guide

3. Fort Benning UMCS and N4 Control System (Graphics and Programming and Standard), most current.
4. Fort Benning BAS Design Guide, most current.
5. Fort Benning NEC Standards, ISP-OSP TTP, Dec 2022 v1.6
6. Fort Benning Installation Planning Standard, Feb 2016
7. Fort Benning Fire Protection Requirements, effective 11 May 2023
8. Fort Benning Environmental considerations listed on FB-144R.
9. Georgia Environmental Protection Division rules, laws, and codes.
10. Fort Benning Environmental Management Division (EMD) Standards. If there is a conflict with the EMD Standards, the more stringent standard shall be used.
11. Comply with all Local, State, and Federal National Pollutant Discharge Elimination System (NPDES) laws and guidelines.
12. United States Army Corps of Engineers, Safety and Health Requirements Manual EM 385-1. Applicable edition at award.
13. TM 111 Guidance provided in U.S. Army Training and Doctrine Command (TRADOC) Force Protection Program (FPP): Unified Facilities Criteria (UFC) for buildings.
14. Compliance with Buy American Act (BAA). Provide BAA letter/Mfrs. Certificate of Compliance with all required material submittals.
15. ANSI/ASME A13.1 (Pipe Identification Standard)
16. ASHRAE - Standard 90.1-2022 - Energy Standard for Buildings Except Low-Rise Residential Buildings
17. ASHRAE 62.1/62.2 - 2022
18. SMACNA - HVAC Duct Construction Standards - Metal and Flexible, 4th Edition (2021)
19. Local utility specifications
20. All state and local standards and environmental codes and regulations
21. Manufacturer’s written instructions

Implied specifications: When specifications are not furnished the standards of work shall be in accordance with industry standards.