



Scope of Work for Repair HVAC in B5122, B5123, B5124, B5130

DPW Project Number: 44451

Fort Moore Building Number: B5122, B5123, B5124, B5130

Period of Performance: 360

Job Walk: TBD

Proposal Due: TBD

Bid Process: MATOC

Schematic submissions by DPW

1. Scope of work
2. 35% Design drawings
3. Construction specifications
4. As-built PDF/ACAD (POC: Chad Carpenter, (706) 681-4584, chad.w.carpenter.civ@army.mil)

Scope of Work

The objective of this mechanical scope is to make improvements to comfort cooling/heating of these 4 barracks buildings. The HVAC systems in B5122, B5123, B5124, B5130 have space cooling and humidity issues that will be addressed through this work. Work items that are in **red font** are unique to that building. These buildings will be occupied throughout construction; thus the contractor will be required to maintain the safety and the climate control of the building during the entire project. The following scope states the key objectives that must be met. Ensure field changes are redlined and meet all the necessary codes/standards.

Scope of Work for 5122

1. Mechanical Work
 - a. **Remove and replace domestic water boilers, pumps, expansion tanks, valves, strainers, gauges, etc.**
 - b. **Boiler basis of design or equivalent:**
 - i. **2 Lochinvar Armor floor mount commercial condensing water heaters with all available points connected to UMCS.**
 - ii. **All gas piping shall be hard piped to equipment.**
 - iii. **All UL1738 special gas vent shall be 316-L stainless steel equipped with and internal gasket and locking clamp.**
 - iv. **All control point shall be brought into the Niagara 4 server at the UMCS.**
 - v. **BACnet MS/TP**
 - c. Replace all 4-pipe fan coil thermostats with communicating models equipped with:
 - i. Lockable Touch screen interface
 - ii. On-board dehumidification control strategy enabled (set to 50%)
 - iii. CO2 Sensor
 - iv. PIR sensors w/occupancy functions enabled.



- v. Window switches installed and enabled. Adhere warning sticker all windows affected that inform users of the inability to run the HVAC if either window is open. (Submit proposed sticker verbiage with submittals for approval)
- vi. Include all available control points, to include, but not limited to temp, room humidity points, CO2, occupancy, window position, etc. in UMCS graphics.
- vii. BACnet MS/TP
- d. Clean, flush, replace filters/belts, and service all fan coils and DOAS units.
- e. Reprogram/interlock controls of the DOASs to shut off the supply fan/exhaust fan and alert UMCS in the event of any failure or condition that would introduce non-conditioned hot/humid air into the space.
- f. All hard piping (domestic, heating, and chilled) shall be installed in a workmanlike manner at typical angles of 45° and 90°.
- g. All wiring, to include low voltage and control, shall be sealed in conduit.
- h. Unless explicitly offered, assume no Fort Moore 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 Moore controls support or as-built drawings (if available).
- i. All new equipment and existing control points shall be brought onto the UMCS and have their graphics designed per Fort Moore's programming and graphics standards. All Controls and Graphics integration shall be brought onto the building JACE, and finally at the N4 server. **All Controls and Graphics must be made visible/controllable at Fort Moore's UMCS Building 497 through the N4 server.** The final "master system integration" (From Bldg. JACE to N4 Server) will entail a credentialed person with access to the server. Coordinate with NEC for any necessary CAT5 drops, ports, IP/mac address, and switch installations.
- j. All controls shall be BACnet MS/TP (not over IP)
- k. Provide temporary heating/cooling if building or any room's HVAC will be down longer than 8hrs.
- l. Perform all electrical work in support of mechanical.

Scope of Work for 5123 and 5124

2. Mechanical Work

- a. Replace all 4-pipe fan coil thermostats with communicating models equipped with:
 - i. Touch screen interface.
 - ii. On-board dehumidification control strategy enabled (set to 50%)
 - iii. CO2 Sensor
 - iv. PIR sensors w/occupancy functions enabled.
 - v. Window switches installed and enabled. Adhere warning sticker all windows affected that inform users of the inability to run the HVAC if either window is open. (Submit proposed sticker verbiage with submittals for approval)
 - vi. Include all available control points, to include, but not limited to temp, room humidity points, CO2, occupancy, window position, etc. in UMCS graphics.
- b. Clean, flush, and service all fan coils and DOAS units.



- c. Reprogram/interlock controls of the DOASs to shut off the supply fan/exhaust fan and alert UMCS in the event of any failure or condition that would introduce non-conditioned hot/humid air into the space.
- d. All wiring, to include low voltage and control, shall be sealed in conduit.
- e. Unless explicitly offered, assume no Fort Moore 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 Moore controls support or as-built drawings (if available).
- f. All new equipment and existing control points shall be brought onto the UMCS and have their graphics designed per Fort Moore's programming and graphics standards. All Controls and Graphics integration shall be brought onto the building JACE, and finally at the N4 server. **All Controls and Graphics must be made visible/controllable at Fort Moore's UMCS Building 497 through the N4 server.** The final master system integration will entail a credentialed person with access to the server. Coordinate with NEC for any necessary CAT5 drops, ports, IP/mac address, and switch installations.
- g. All controls shall be BACnet MS/TP (not over IP)
- h. Provide temporary heating/cooling if building or any room's HVAC will be down longer than 8hrs.
- i. Perform all electrical work in support of mechanical.

Scope of Work for 5130

1. Mechanical Work

- a. Replace all 4-pipe fan coil thermostats with communicating models equipped with:
 - i. Touch screen interface.
 - ii. On-board dehumidification control strategy enabled (set to 50%)
 - iii. CO2 Sensor
 - iv. PIR sensors w/occupancy functions enabled.
 - v. Window switches installed and enabled. Adhere warning sticker all windows affected that inform users of the inability to run the HVAC if either window is open. (Submit proposed sticker verbiage with submittals for approval)
 - vi. Include all available control points, to include, but not limited to temp, room humidity points, CO2, occupancy, window position, etc. in UMCS graphics.
- b. Clean, flush, and service all fan coils and DOAS units.
- c. Reprogram/interlock controls of the DOASs to shut off the supply fan/exhaust fan and alert UMCS in the event of any failure or condition that would introduce non-conditioned hot/humid air into the space.
- d. **Install mounted brackets to prevent refrigerator from obstructing return air flow grill.**
- e. All wiring, to include low voltage and control, shall be sealed in conduit.
- f. Unless explicitly offered, assume no Fort Moore 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 Moore controls support or as-built drawings (if available).
- g. All new equipment points and existing control points shall be brought onto the UMCS and have their graphics designed per Fort Moore's programming and graphics



standards. All Controls and Graphics integration shall be brought onto the building JACE, and finally at the Niagara 4 (N4) server. **All Controls and Graphics must be made visible/controllable at Fort Moore's UMCS Building 497 through the N4 server.** The final master system integration will entail a credentialed person with access to the N4 server. Coordinate with NEC for any necessary CAT5 drops, ports, IP/mac address, and switch installations.

- h. All controls shall be BACnet MS/TP (not over IP)
- i. Provide temporary heating/cooling if building or any room's HVAC will be down longer than 8hrs.
- j. Perform all electrical work in support of mechanical.

CODES AND STANDARDS:

All work shall be completed in accordance with all applicable codes and standards published at the time of 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 3-420-01 Plumbing Systems
6. UFC 3-430-01FA Heating and Cooling Distribution Systems
7. UFC 3-430-11 Boiler Plant Instrumentation and Control Systems
8. UFC 3-450-01 Noise and Vibration Control
9. 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 DEMOLITION AND DECONSTRUCTION

DIVISION 22 - PLUMBING



1. UFGS 22 00 00 Plumbing, General Purpose
2. UFGS 22 05 48.00 20 Mechanical Sound, Vibration, and Seismic Control
3. UFGS 22 07 19.00 40 Plumbing Piping Insulation

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 13.34 40 Control Valves, Self-Contained
11. UFGS 23 09 23.02 BACnet Direct Digital Control for HVAC and Other Building Control Systems
12. UFGS 23 09 33.00 40 Electric and Electronic Control System for HVAC
13. UFGS 23 09 53.00 20 Space Temperature Control Systems
14. UFGS 23 09 93 Sequences of Operation for HVAC Control
15. UFGS 23 11 20 Facility Gas Piping
16. UFGS 23 21 13.00 20 Low Temperature Water (LTW) Heating System
17. UFGS 23 21 23 Hydronic Pumps
18. UFGS 23 30 00 HVAC Air Distribution
19. UFGS 23 31 13.00 40 Metal Ducts
20. UFGS 23 36 00.00 40 Air Terminal Units
21. UFGS 23 37 13.00 40 Diffusers, Registers, and Grills
22. UFGS 23 41 13.00 40 Panel Filters
23. UFGS 23 52 00 Heating Boilers
24. UFGS 23 52 33.03 20 Water-Tube Boilers, Oil/Gas or Oil
25. UFGS 23 52 43.00 20 Low Pressure Water Heating Boilers (Under 800,000 BTU/HR Output)
26. UFGS 23 52 46.00 20 Low Pressure Water Heating Boilers (Over 800,000 BTU/HR Output)
27. UFGS 23 54 19 Building Heating Systems, Warm Air
28. UFGS 23 72 00.00 10 Energy Recovery Systems
29. UFGS 23 73 13.00 40 Modular Indoor Central-Station Air-Handling Units
30. UFGS 23 74 33.00 40 Packaged, Outdoor Heating and Cooling Makeup Air-Conditioners
31. UFGS 23 76 00.00 10 Evaporative Cooling Systems
32. UFGS 23 76 00.00 20 Evaporative Cooling System
33. UFGS 23 80 20.00 10 Gas-Fired Heating Equipment
34. UFGS 23 81 00 Decentralized Unitary HVAC Equipment
35. UFGS 23 82 00.00 20 Terminal Heating Units
36. UFGS 23 82 01.00 10 Warm Air Heating Systems
37. UFGS 23 82 16.00 40 Air Coils
38. UFGS 23 82 19.00 40 Fan Coil Units
39. UFGS 23 82 23.00 40 Unit Ventilators
40. UFGS 23 82 43.00 40 Electric Duct Heaters
41. UFGS 23 82 46.00 40 Electric Unit Heaters
42. UFGS 23 83 00.00 20 Electric Space Heating Equipment



International Code Council (ICC)

1. 2018 International Building Code (IBC)
2. 2018 International Existing Building Code (IEBC)
3. 2018 International Mechanical Code (IMC)
4. 2018 International Plumbing Code (IPC)
5. 2018 International Fire Code (IFC)
6. 2018 International Fuel Gas Code (IFGC)
7. 2018 International Energy Conservation Code (IECC)

National Fire Protection Association (NFPA)

1. NFPA 70 2017 National Electric Code
2. NFPA 13 Automatic Sprinkler Systems
3. NFPA 54 National Fuel Gas Code

Miscellaneous Codes and Requirements

1. American with Disabilities Act (ADA) Compliance Guide
2. Fort Moore Installation Design Guide
3. Fort Moore Niagara Programming and Graphics Standard, most current.
4. Fort Moore BAS Design Guide, most current.
5. Fort Moore NEC Standards, ISP-OSP TTP, Dec 2022 v1.6
6. Fort Moore Installation Planning Standard, Feb 2016
7. Fort Moore Fire Protection Requirements, effective 11 May 2023
8. Fort Moore Environmental considerations as listed on the FB-144R
9. Georgia Environmental Protection Division rules, laws, and codes.
10. Fort Moore 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 90.1-2019 - Energy Standard for Buildings Except Low-Rise Residential Buildings
17. ASHRAE 62.1/62.2 - 2019
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.