

REPLACEMENT OF TWO SPLIT HVACs and REPLACEMENT WITH PACKAGE UNITS FOR THE FAYETTEVILLE AIRPORT SURVEILLANCE RADAR

FYV ASR

Project Location

West Fork, AR 72774

LAT/LONG: 35.977172, -94.140306

1. STATEMENT OF WORK

The Federal Aviation Administration's, Fayetteville Airport Surveillance Radar (FYVV ASR) has two 27 ton Split HVACs that must be replaced with two 27 ton package units. Additionally new ductwork must be routed through the exterior block wall to terminate to the existing ductwork inside the facility. The contractor must furnish necessary equipment, materials, labor and supervision to perform the following work at the FYV ASR located at LAT/LONG 35.977172, -94.140306, in West Fork, AR 72774. Work within this area requires escort, and might include background checks for all onsite personnel, and must be coordinated with the FAA Contracting Officer's Representative (COR) in advance.

Equipment:

1. The contractor must coordinate with the FAA on the removal of ACU1 and ACU2 and replacement with new 27-ton package units. The replacement units must bear the following salient characteristics.
 - (a) R410 Refrigerant, 27 Ton, Cooling only, with two-staged compressors, Horizontal discharge, 3PH 208V, 60Hz units with no heat, with hail guards. Loss of conditioning of the workspace is not acceptable, therefore the removal must be staged accordingly. (See Figures and Pics Below)
(Submittal Required)
2. Contractor must submit to the COR a coordination plan detailing the removal and installation of the AHU's including the capture of refrigerant. (Submittal Required)
3. If, upon arrival, any unit is out of service, that unit must be replaced first.
4. The contractor must capture all refrigerant from the existing units and properly recycle/dispose of it in accordance with applicable regulations. The FAA must receive a certificate of disposal if applicable. (Certificate Required)
5. Remove existing refrigerant piping. (See Figs. 4, 8, 13)

Concrete Work:

6. Contractor must increase the size of the existing exterior concrete equipment pad to accommodate the new units. Concrete may be formed to incorporate the existing pad, or existing pad may be demolished. (See Figures 3, 4 and HVAC Duct Layout Drawing)
7. If incorporating existing pad, drill horizontally a minimum of 6 inches into existing concrete and epoxy (Submittal Required) #3 rebar (12 inch in length) into concrete, spaced no more than two feet apart, all around existing pad.
8. The final concrete pad must be sized to allow for adequate clearance between new package units.
9. Equipment pad must be 8" thick, with #3 rebar grid mat, tied 12" on center in both directions, with a turn down edge of 12" and a thickness of 4" all around. Provide and install 2#3 rebar separated by 3" all around entire edge of pad.(Submittal required)
10. Provide and install #3 L-shaped rebar turning down for pad edge. Width of turn down must be 6", to ensure 3" concrete coverage of rebar. Provide and install 1#3 bar tied to center of L bars, installed horizontally around entire turn-down footer.
11. Provide and install compacted fill material beneath pad in no more than 6" lifts to be compacted by a

vibratory tamping/compaction. (Provide Submittal for fill material.) (See Figs 17,18 for approximating slope/fill requirements)

12. Concrete must be 4000 psi, fiber reinforced, concrete. Slump must be no less than 6” when deposited on site. (Submittal Required)
13. Remove concrete maintenance pad below existing air handler units. Finish floor must be flush with existing concrete. (See Figure 12)
14. Provide and install a floor leveling compound to fill areas removed to establish a smooth overall finish on floor. (Submittal Required)
15. Provide and install a low Volatile Organic Compound (VOC) epoxy coating over entire floor in the existing air handler room. (Submittal Required)

Electrical Work: See FAA-C-1217

16. Since existing conduits are stubbed-up between the equipment shelter and the existing pad, existing conduit bodies (LBs) must be removed, and new Rigid Galvanized Steel (RGS) nipples must be installed to extend the existing 1-1/2” conduit to new pull box. (Submittal Required) (See Figure 7)
17. Provide and install NEMA 4X Stainless Steel, screw or hinged cover pull box to terminate RGS nipples. (At location in Fig 7)
 - (a) Alternatively, contractor may intercept 2” RGS conduit below grade, and extend to new disconnect location.
 - (b) Conduit must be 2”PVC coated RGS conduit buried no less than 24” below grade.
 - (c) Conduit must be PVC coated, with a coupling terminating flush with the finished grade of concrete.
 - (d) Provide and install RGS nipple from coupling to disconnect switch.
 - (e) New conductors must be installed from panel in Radar Equipment room (Breakers #11 and #13 Respectively)
18. Provide and install a minimum of 2” RGS conduit from pull box to disconnect switches for each unit. (Submittal Required)
19. Existing disconnect switches may be reused if sized appropriately. (Fig 5, 6)
20. Provide and install #2/0 AWG THWN insulated copper conductor. Ensure conductors are sized in accordance with the manufacturer’s requirements for the new package units. (Submittal Required)
21. Provide and install waterproof 600V, compression fitting splice kits to extend conductors, installed in J-box identified above. (Submittal Required)
22. Relocate disconnect switch Unistrut supports to minimize distance of conduit feed to the new package units. (Figs 3, 5, 6, 7)
23. Provide and install liquid-tight metal flex in a length no longer than 4 feet to each respective package unit. (Submittal Required)
24. Contractor must provide and install Engraved Plastic Laminated Labels, UV Rated for >5 years, black with white letters. (See Fig 5) Label must read ACU1 or 2, XXX A, 208 VOLTS, 3 PHASE, 3 WIRE. (XXX – Replace with Amperage rating of the unit) (Submittal Required)
25. All conduit bushings must be metallic with insulated throat. (Submittal Required)
26. All conduits must be RGS and have threaded or compression fittings exterior and below four feet interior. (Submittal Required)
27. Electric Metallic Tubing (EMT) may be utilized inside the building only, above 4 feet, and all fittings must be compression fittings. No set screw fittings may be used. (Submittal Required)
28. Provide and install fuses sized in accordance with equipment manufacturer’s recommendations. (Submittal Required) (Fig 7)
29. Conductors must be three-phase (Black, Red, Blue) with Green Ground in each conduit. Phase tape

may be used and must be wrapped (half width overlap) around conductor for a minimum of 3 inches around conductors. (Submittal Required) (Fig 7)

30. Each box must be bonded with no less than a #6 green, insulated conductor, and bonded to the box with an approved lug to the box. Paint must be removed from the surface of the box where lug bolt to box via a stainless-steel bolt/washer/nut and one hole lug. (Submittal Required) (Ref. FAA-STD-019)
31. For all conduits passing from a wet to dry location, a threaded insulated grounding bushing must be installed, and ground wire must be bonded to ground lug withing box. (Submittal Required)

Bollards:

32. Steel bollard posts must be removed and replaced. Spacing must be no more than six feet from the edge of the new pad on three sides (none between building and units). The spacing between the bollards must be no greater than 6 feet center to center, all around. (Figs. 2, 3,4)
33. Existing bollards may be reused, and additional bollards must be provided (match existing) and installed. All must be installed no less than two feet below grade in a 18 inch diameter hole. The post hole must be filled with 4000 psi concrete. Steel posts must be filled with concrete.
34. Provide and install yellow bollard sleeves with reflective stripes over all bollards. Existing bollards are 9". (Submittal Required)

Ductwork:

The intent is to route/arrange ductwork inside the existing air handler room to maximize space within the room. Contractor must submit a plan for duct layout. (Submittal Required) (See Duct Layout Drawing)

35. All duct bends must be equipped with fixed internal turning vanes in accordance with industry practice. (Submittal Required)
36. Provide and install interior insulated (1" insulation) exterior metal ductwork. Contractor is responsible to field verify all dimensions. (Submittal Required)
37. All duct joints must be sealed with an exterior grade duct sealer (Submittal Required)
38. The outside of the exterior metal ductwork must be insulated with rigid 2" polyisocyanurate insulation foil-faced board and matching joint tape. **Ducts/duct boards must be sloped to eliminate standing water.** (Submittal Required)
39. All exterior ducts/duct board must be completely coated with Silicone sealer (White) (Submittal Required)
40. Provide and install supply ducts from each unit to inside of block wall and turn vertically and routed overhead to connect to existing supply duct. Duct must connect to existing 24" x 40" duct. (Submittal Required)
41. Provide and install a blank cover over the innermost duct opening in the duct overhead. (see HVAC Duct Drawing)
42. Provide and install one transition duct with internal gravity backdraft dampers inside unit supply duct branches that allow airflow from operating unit only while closing on non-operating unit before the joint where the two supply ducts come together. Dampers must operate smoothly with no binding. (Submittal Required)
43. Provide and install large access door to inspect/access dampers in supply ducts. (Submittal Required) Access panel must be installed at a level that may be accessed by personnel without the use of a ladder.
44. Provide and install return air ducts from units, routed separately into facility, routed overhead, and terminating near the floor on the opposite side of the wall (see HVAC Duct Layout drawing for approximate location)
45. Both supply and return ducts must have flexible connections at the connection to the outside units. (Submittal Required)
46. Route return air ducts through ¾" plywood stud wall and terminate with a grille cover on the interior of the equipment room wall no more than 12" above finished floor. (Submittal Required) (See Figure 9)

47. Repair all existing openings in the plywood stud wall, or holes from removed return air grilles. (See Figures 9, 10)
48. Blank cover and completely seal the existing 48" x 24" and 24" x 24" return air ducts and two 16" diameter round ducts in equipment room. (Contractor must verify dimensions.) (Submittal Required) (See Fig 25)

Block Wall Removal/Restoral:

49. Concrete decorative block wall must be cut to accommodate the duct entry for both supply and return ductwork, sized to accommodate the exterior duct insulation. Assume blocks are concrete filled. (Submittal drawing required) (Figs 3, 8)
50. Provide and install a W8 x 48 steel beam above duct openings to serve as a lintel. Lintel must be installed to rest over a minimum of ½ of existing block, across the horizontal width of opening. Alternatively, concrete lintels may be provided. (Submittal Required) (Fig 3)
 - (a) Beam must have holes for anchor bolts in lower flange (one interior/one exterior on both ends).
 - (b) Provide and install hot dipped galvanized anchor bolts with washers in each block extended into the cavity of the block below, no less than 6 inches. (Submittal Required)
 - (c) Fill void in block with a minimum of 4000 psi grout to anchor bolts. (Submittal Required)
51. Provide and install architectural blocks to fill all voids removed/damaged between ducts. (Submittal Required) (See Fig 3,16)

Controls:

52. The existing thermostat control wiring must be disconnected from the units and new ¾" RGS conduit must be extended. Provide and install new thermostat wires routed to new units incorporating the existing RGS conduit and terminating with ¾" liquid-tight metal flex (not to exceed 3 feet) to reconnect to the new units. (Submittal Required) (See Figs 8, 11)
53. Remove duct detectors. (See Fig 20)
54. Remove Disconnects for Duct Heaters (See Fig 19)
55. Contractor must coordinate the operation of the controls with the COR. Disconnect all existing sensors and controls connected to the units to be removed prior to demolition.

Grounding/Bonding: Reference FAA-STD-019

56. Remove existing ground wire from both unit frames. (See Fig 7)
57. Provide and install a new insulated #2 ground wire in 1-1/2" SCH 80 PVC conduit using a smooth 90 degree ELL from unit routed to no less than 2 feet below grade then terminated on the existing counterpoise system below grade. Terminate #2 ground wire directly to existing counterpoise conductor below grade via an exothermic welding process. Thoroughly clean existing below grade wire (free from all debris) prior to welding.
58. New #2 ground wire must be attached to unit frame with a two hole compression connector crimped to wire and bolted to the frame of the package unit via stainless-steel hardware. (Submittal Required)

Other:

59. Contractor must remove 10' x15' wood storage building from site. (See Fig. 23)
60. Expose 2" water line below grade. (See Dwg FYV-ASR9-C02 and Fig 21). Re-route pipe around location for new concrete pad.
61. Provide and install a 2" to ¾" "Tee" ball valve and route ¾" type K copper with PVC sleeve no less than 24" below grade in a bed of sand, with a minimum of 4" of sand above and below pipe. (See Fig 22)
62. Route water line to a location within bollard designated area to a provided and installed vented hose bib surface mounted to a 4"x4" pressure treated post buried no less than 24" below grade embedded in 18"

diameter hole with 4000 psi concrete to anchor post. (See Fig 22)

63. Contractor must take possession of all materials removed as part of this project and dispose of it in accordance with appropriate standards and regulations.
64. The contractor must use the manufacturer's startup checklist to document installation for each unit on a separate checklist. (Submittal Paperwork Required)
65. The contractor must certify that the HVAC systems, subsystems, and equipment have been installed, calibrated, and started and are operating as designed.
66. The contractor must set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).
67. The contractor must ensure that all controls work and are connected to the existing facility monitoring system.
68. The contractor must provide training for a minimum of 4 personnel on the operation and maintenance of the HVACs.

69. Provide the following spare parts:
 - (a) Provide one additional set of filters for each of new units installed.
 - (b) Provide one additional set of fuses for each disconnect.
 - (c) Provide one set of belts for each belt driven piece of equipment for each unit installed.

70. Upon completion of the work, the Contractor must submit to the COR or Technical Contact three (3) binder copies all paperwork associated with the installation of each unit. This manual must contain, but not be limited to, approved submittals, instructions for installation, operation and maintenance, startup checklist for each unit, replacement parts list, sequence of operation description, sizing and capacity data and manufacturer's warranty information for all equipment furnished by the Contractor.

The General Contractor (GC) is expected to work Monday through Friday during the daytime hours of 0700 AM to 0330 PM unless alternatively coordinated in advance with the Contracting Officer Representative (COR). Coordination between the GC and FAA personnel must be required at all times in order to maintain an operational facility.

Any discrepancies between the contract provisions and the actual site conditions must be referred to the Contracting Officer (CO) for a written determination in accordance with Contract Clause entitled Order of Precedence.

2. SITE ACCESS/CONSTRUCTION LIMITS

1. Contractor must maintain access to the site at all times.
2. Construction/demolition must in no way interfere with FAA Operations. Extreme care must be exercised so as not to cause any interference or interruption of service provided by this facility. It is mandatory that the contractor protect FAA personnel and existing communications equipment. Any damages incurred, as a result of construction activity during the performance of this contract will be repaired/replaced immediately by the contractor at no cost to the FAA.
3. Any work or activity that may impact the FAA, such as work on critical equipment or circuits, will require coordination with the COR. The COR will coordinate with the local facility personnel to address develop an activity specific "Risk Assessment" for the facility's final approval. This process may take a full day to complete.

4. No contractor personnel may terminate or remove any connections to existing power panels. Only FAA personnel must enter FAA panel boards unless they have been de-energized and coordination has been done in advance with the COR. Contractor must advise the COR at least one day in advance when it is expected that access to power panels will be necessary to allow for coordination with local FAA specialists to be on site to make the terminations. The contractor personnel must not operate any breakers in any existing FAA panel boards. NO ELECTRICAL TERMINATIONS MUST BE MADE ON AN ENERGIZED CIRCUIT.
5. The contractor must confine operations, activities, storage of materials and employee parking within the designated areas, as identified by the COR. If required, Additional space the contractor deems necessary must be obtained off site, at no additional cost to the Government.
6. Vehicles transporting materials must not be loaded beyond the capacity prescribed by federal, state, or local laws. Obstruction of existing roadways, driveways, to the facility is strictly prohibited.
7. Damage to existing paving, lawns, and utilities caused by the contractor's activities must be repaired immediately. Any damages that are a result of the contractor's activities must be repaired. All costs of repairs must be paid by the contractor. After notice to proceed and prior to the commencement of construction, the contractor and COR must conduct joint inspections of the existing areas affected by the construction. Existing damage or defects must be noted and will be used as the basis for determination of damages caused by the contractor's operations.
8. It is strongly urged that the contractor carefully examine the premises to determine the extent of work and the conditions under which it must be done. The contractor must coordinate the delivery, set-up, placement of crane, and take down of the crane with the FAA at least one-week prior to site mobilization.
9. The Government reserves the right to enter the construction area at any time for work inspection and for the operation of the facility.
10. All work hours, shifts, and overtime work must be coordinated with the COR. Before commencing construction, furnish to the COR a statement of hours per day and days per week to normally be worked and approximate number of persons on the job for a normal work shift.
11. At the end of each workday, the contractor must secure all construction areas. The contractor is responsible for the security of the staging area and must provide the required measures at no additional expense to the government.

3. PERSONNEL

Contracting Officer -The term "Contracting Officer" (CO) as used herein denotes the person designated to act on behalf of the Government in the performance of this contract. Where reference is made to "Federal Aviation Administration" (FAA), "Contracting Officer's Representative" (COR), or the like, this must mean the Contracting Officer or his/her authorized representative.

Contractor Superintendence - In accordance with Contract Clause entitled SUPERINTENDENCE BY THE CONTRACTOR, the Contractor must at all times during performance of this contract and until the work is completed and accepted, directly superintend the work or assign and have on site a competent superintendent with the authority to act for the Contractor.

The Contractor must submit a Project Organizational Chart with the key personnel identified and their qualifications for the Government's review and approval.

The contractor and his employees must be subject to all rules and regulations relative to entering and leaving the FAA facility.

Employees - The government reserves the right to restrict the employment of any contractor employee, or prospective contractor employee, who is identified as a potential threat to the health, safety, security, general

well-being, or operational mission of the installation and its population.

The contractor must not employ any person who is in employment of the United States Government if the employment of that person would create a conflict of interest.

4. COORDINATION

The contractor must coordinate all work which has any or may have any impact on any operational system through the COR. The contractor must immediately cease any work which is adversely impacting the operation of the FAA facility and must be responsible for the immediate repair or restoration of any portion of the operational system that has been damaged or suffered diminished performance as a result of the contractor's activities. No repairs must be completed without notification of the COR. In some cases, the repairs may be performed by FAA personnel at the contractor's expense, due to the criticality of the repair.

The Contractor will be responsible for obtaining and payment of all building fees, inspection fees, utility connection charges and any other fees or charges which may be incurred in the performance of this contract. The contractor must comply with all local city, county, and state construction codes.

All materials or workmanship or both which have been rejected by the COR by reasons of failure to conform with the requirements of the Contract Documents must be removed and replaced with new, acceptable materials by the contractor at the contractor's own expense. Contractor must also pay for testing of new materials which have been installed in place of rejected materials.

5. CONSTRUCTION SCHEDULE

The work plan and schedule prepared by the contractor must consist of a logical narrative plan. Include construction activities, submittal and approval of materials, samples and shop drawings (if applicable), the procurement of critical materials and equipment, fabrication of special materials and equipment along with their installation and testing.

Within fifteen (15) calendar days of contract award, the contractor must submit the schedule and work plan. **▲ Notice to Proceed will not be issued until the schedule is approved.**

6. SAFETY REQUIREMENTS

Contractor Responsibility

1. General Safety Provisions - The Contractor must bear full responsibility to provide safe working conditions for its employees and Contractors. The Contractor must not permit any employee or Subcontractor to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to the health and safety of the employee.
2. Accident Prevention - The Contractor must bear the responsibility of maintaining an accident prevention program such that frequent and regular inspections of the job site, materials and equipment are made by a competent person designated by the employer.
3. Use of Equipment - The Contractor must not permit the use of any machinery, tool, material, or equipment that is not in compliance with OSHA regulations. The employer must permit only those employees qualified by training and/or experience to operate equipment and machinery.
4. The FAA must not be held responsible for safety inspections to ensure Contractor conformance with the OSHA safety regulations. The FAA, however, reserves the right to notify the Contractor of any deficiencies regarding worker safety.

The FAA will evaluate the Contractor on its safety performance, including that of its Subcontractors. The number and severity of safety and security violations will be considered in this evaluation. Contractor safety violations are cause for termination for default, may result in notification of the Contractor's bonding company, and will affect the Contractor's opportunity to propose on future work. Failure to correct such deficiencies may impact the Contractor's ability to work on future FAA contracts.

OSHA Regulations

The Contractor must comply with the latest Occupational Safety and Health Administration regulations (CFR 29 Part 1926) regarding safety in the work area.

The Contractor must be responsible for obtaining copies of non-FAA referenced documents without additional cost to the FAA. If Contractor requests a copy of FAA directives, they may be obtained by contacting the Contracting Officer.

The Contractor is not relieved from adhering to other OSHA requirements not listed herein. The Contractor must consult the latest referenced OSHA documents for safety regulations.

OSHA Documents:

CFR 29 Part 1926 Safety and Health Regulations for Construction

CFR 29 Part 1910 General Industry Standards Applicable to Construction Industry

7. CLEAN-UP

The contractor must correct or repair any damage done during any part of this contract. Scrap and debris resulting from the project must be removed from the site after each day's work on site. All debris and generated waste must require disposal in a manner that is not in conflict with local sanitary regulations.

8. SUPPLIES AND EQUIPMENT

The Contractor must furnish all supplies and equipment as specified to accomplish the contract specifications.

SHIPPING AND RECEIVING MATERIAL. FAA must not be responsible for shipping or receiving any material relating to this contract nor must the contractor ship or otherwise receive any materials at the expense of the FAA.

PROTECTION OF MATERIAL. Contractor must protect and maintain in like new condition all materials and supplies to be incorporated into this project and must be responsible for their safe storage.

STORAGE OF MATERIALS. No storage area/space will be provided for contractor furnished equipment or supplies. Onsite storage must be coordinated with the COR so that the roadway is not blocked.

CONTACT/LOCATION INFORMATION

A. Location of Work:

FYV ASR
Project Location
West Fork, AR 72774
LAT/LONG: 35.977172, -94.140306

B. FAA Point of Contact:

Ron Nelson
901-482-7667

- C. Pre-Bid Site Visit: All interested contractors are invited to view the site conditions prior to bidding. A site visit can be coordinated with the FAA Point of Contact. All expenses for the recommended site visit must be the responsibility of the contractor. The U.S. Government must not reimburse any expenses incurred for the purpose of soliciting bids for this contract.

9. ACCEPTANCE OF WORK

The FAA COR will conduct a Construction Acceptance Inspection at the completion of the project to ensure that all items of the contract have been fulfilled and that the site has been cleaned of debris.

PHOTOS



Figure 1: Satellite View of Facility



Figure 2: Closer Satellite View



Figure 3: Outside Facility View



Figure 4: Outside Units

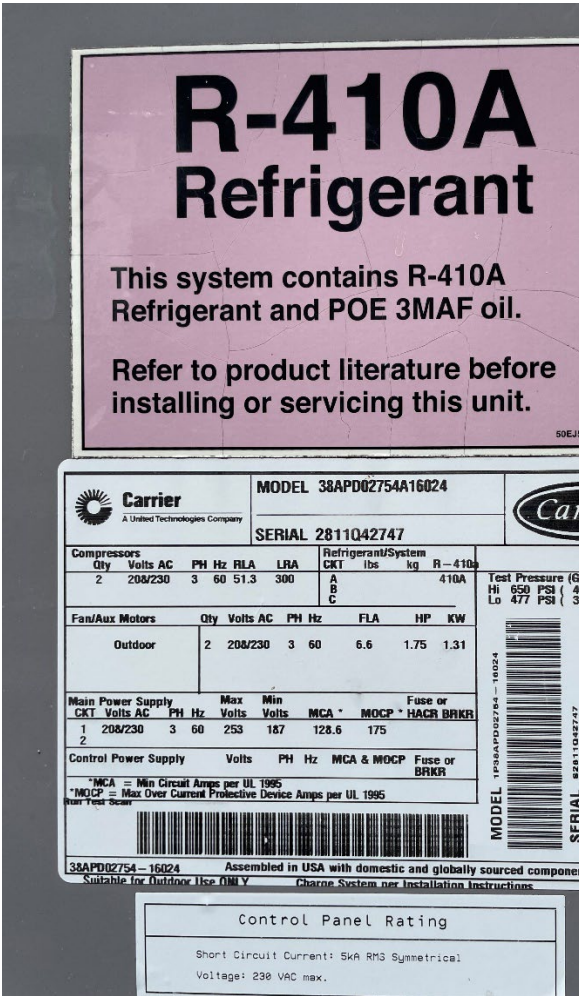


Figure 3: CU#1 Nameplate



Figure 4: AHU#1 Nameplate



Figure 5: Existing NEMA 4X Disconnect Switch



Figure 6: Inside Disconnect Switch



Figure 7: LBs showing Power Feeds to Unit Disconnects and PVC LB for Ground Wire



Figure 8: Refrigerant Lines (To Be Removed) Control conduit visible in photo. (3/4" RGS)

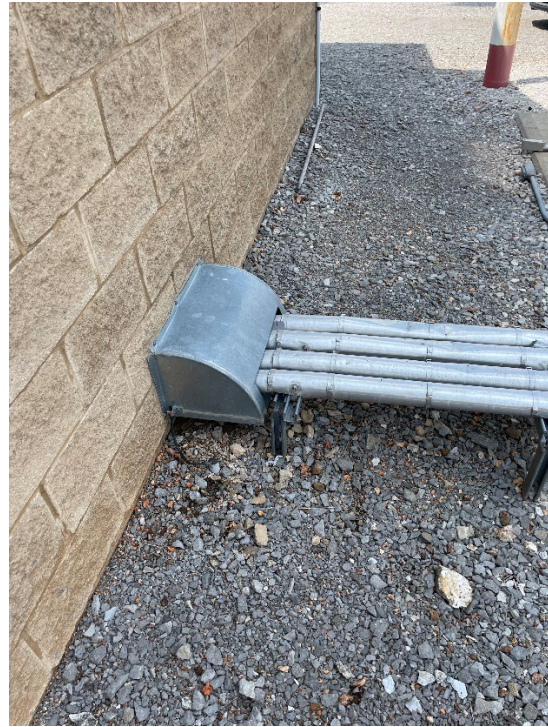


Figure 9: Opening Cut Through Stud Wall As Return Air. Patch and Refinish.



Figure 10: Existing Return Air Grille Close to Ceiling. Patch Hole and Refinish Drywall



Figure 11: Existing HVAC Thermostats/Controls (To be Reused)

New Return Air Grilles to be located near floor on both sides of this control box.





*Figure 12: Typical Pics of Air Handler Units (To Be Removed)
Remove concrete pad.*



Figure 13: Typical Pics of Air handler units, Refrigerant Lines to be removed. Supply air ducts visible going above ceiling.



Figure 14: Interior Disconnect Switch for Duct Heater (Typ 2) to be removed.



Figure 15: Location where new supply duct will connect to existing supply duct. Blank cover opening on the one to left.



Figure 16: Pics of Facility Access door. Current Air Handler Room. Duct routing inside room must maximize open space in room when all existing Air handler equipment is removed. Architectural block wall finish visible.



Figure 17: View of property slope (Looking SW)



Figure 18: View of Property Slope (Looking NE)



Figure 19: Remove Duct Heater Disconnect Switches



Figure 20: Duct Detector (Typical)



Figure 21: 2" Water line. Reroute Around Future Pad.



Figure 22: Provide and install Tee, Valve Pipe to Hose Bib

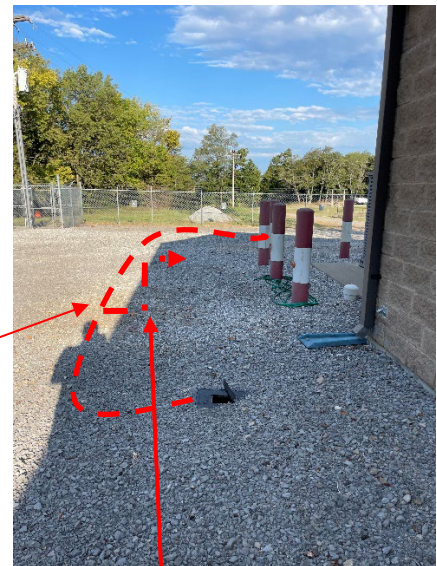


Figure 23: Remove 10' x 15' Building



Figure 24: When new pad is installed locate new HVAC unit away from this cleanout.

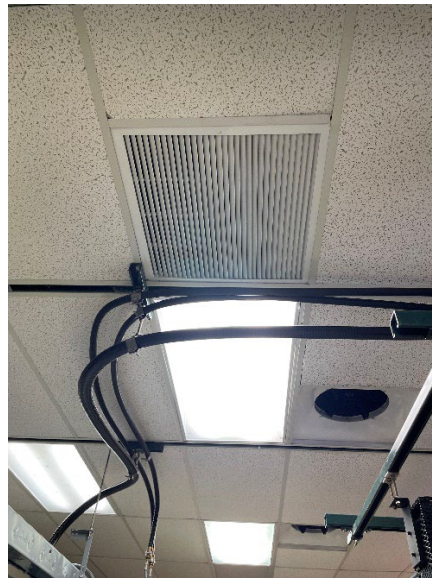


Figure 25: Blank Cover Duct Openings



DRAWINGS (For Reference)

Duct Layout

FYV-ASR9-M01

FYV-ASR9-M02

FYV-ASR9-M07A

FYV-ASR9-M08A

FYV-ASR9-M09

FYV-D-ASR-E003A

FYV-ASR9-C02

Additional Documents

FAA-STD-019 Grounding and Bonding

FAA-C-1217 Electrical Work, Premises Wiring