

**Department Of Veterans Affairs
TVHS, Nashville Campus
Requirements for A/E Services
Project 626-17-201
Replace AHU-3A for Sterile Processing Supply**

I. GENERAL SCOPE OF WORK

The consultant shall provide all necessary architectural and engineering (A/E) services as required to prepare complete contract drawings, specifications, technical reports, and cost estimates, including (optional) services throughout construction for "Replace AHU-3A for Sterile Processing Supply" in fan room #2, second floor, Building 1, at the VA Tennessee Valley Healthcare System, Nashville Campus, 1310 24th Avenue South, Nashville, TN 37212. Work will include, but is not limited to, mechanical, electrical, architectural, fire protection, controls and limited structural.

This project will replace the outdated, problematic air handling unit (AHU-3A) system serving Sterile Processing Supply for proper monitoring, control, optimization and reliability.

II. STATEMENT OF PROJECT OBJECTIVES

It is the intent of the Department of Veterans Affairs (VA) to have the A/E fully survey, investigate, and document the existing space and utility systems in order to gain the knowledge and insight necessary to prepare quality, accurate documents in a professional and competent manner in order to accomplish the following project objectives:

1. This project will replace air handling unit (AHU-3A) and heat recovery system, as well as modify main ductwork and controls. AHU-3A system encompasses Air Handling Units, heat recovery, exhaust fans, terminal units and main duct distribution. Project will ensure pressure relationship, temperature and humidity levels remain compliant with VA design criteria in related spaces.
2. This project will improve the condition of the facility by correcting the deficiency on the Facility Condition Assessment report, (FCA #289304 Mechanical, F rating) with the replacement and modernization of the air handling unit system.
3. Improve reliability, monitoring, control and energy efficiency. Use non-priority native BACnet DDC controls and variable speed drives. Implement energy optimization control, such as reset of discharge air temperature, optimal start/stop, occupied/unoccupied and economizer modes. Use DDC and variable speed drives. Integrate new Direct Digital Controls (DDC) controls with existing Alerton or Honeywell DDC frontend systems. VA staff shall be able to quickly shut down AHU and air intakes during an emergency response to an airborne contaminant threat. Upgrade SPS terminal unit box controls on AHU-3A system. Install thermostats in common spaces with resets, setback and override. Also, use occupancy sensing in select areas for flow and temperature setback. New automated control system shall provide tight control of temperature, pressure relationships and humidity, providing a quality care environment.

III. JUSTIFICATION

Project will improve indoor air quality of the Sterile Processing and Supply in accordance with VA HVAC Guidelines. Indoor air quality is very important in a hospital environment and for infection control.

The Facility Condition Assessment Report gave this AHU an "F" rating.

AHU-3A was installed in 1993 and is past its life expectancy.

Existing AHU is problematic and requires constant adjustment, maintenance, and repairs. New AHU will drastically decrease maintenance and repairs and staff time wasted responding to calls.

New energy efficient motors on AHU's will conserve energy & reduce utility costs.

AHU-3A and general exhaust currently are not controlled by a variable speed drive (VSD).

Controls will be upgraded to allow VA to operate equipment more efficiently.

Cooling coil is rusted, clogged and failing.

Steam valves are leaking.

Project corrects Facility Condition Assessment "F" Mechanical by replacing the AHU.

IV. STATEMENT OF A/E TASKS

- A. The A/E shall furnish all services for a complete design development, construction documents, and construction period services as specified in the subject contract.
 1. Necessary site survey work such as verifying existing conditions, verifying record drawings, and verifying and analyzing utility systems shall be accomplished in conjunction with preparation of Design Development.
 2. Field investigation methods and design documentation methods should be efficient and at the same time meet federal contracting Construction Document (CD's) practices. Construction companies should be able to bid on the project without conducting a site visit. CD's must be electronic, but efficient documentation methods can be used, such as overlay of existing drawings, pictures, excel spreadsheets with ref notes, use of key notes, etc.
 3. The complete site survey work shall include a thorough investigation of existing conditions to accurately document and convey space dimensions for measured drawings, all utilities for affected areas, and utilities that traverse through affected areas, typical construction type and variations, and finishes. This information provides the necessary base drawings for the Schematic Development phase of Design Development.
 4. Investigation shall include use of Test, Adjust & Balance (TAB), IR testing/surveillance, temperature testing/surveillance, visual inspection, DDC frontend trending and other innovative measuring and testing methods. Document existing conditions, proposed alternatives and corrective actions. Investigate improved AHU-3A layout and use of standard consolidated package unit. Utility system verification shall include the necessary testing, adjusting, and/or balancing (TAB) of affected systems to ascertain the existing operating and performance conditions that will impact the design and construction process.
 5. A/E shall design to best practices and industry standards, such as utilization of clean steam for AHU humidification and using UV lighting on AHU and energy coils to assist in maintaining cleanliness. Investigate best practices for Supply/Exhaust to maintain/monitor stable, reliable static pressures in SPS spaces.
- B. Design shall comply with VA seismic requirements for the Nashville area.
- C. Design shall minimize disruptions to medical center operations. Suitable space/access for mechanical room equipment maintenance must be maintained throughout construction. Insure proper life safety, including (but not limited to) egress, proper fire/smoke compartmentation, fire alarm, sprinkler system, etc.
- D. A/E shall design within funding limitations. AE shall coordinate cost control measures with COR to design within funding limits. Cost control alternatives shall be explored in Design Development (DD's).
- E. A/E shall provide cost estimation, project scheduling & phasing, bid period and (optional)

construction period services as further described in the contract. Estimates shall have a full itemized breakout for this VA Non-Recurring Maintenance (NRM) project.

- F. When observed on AHU-3A system, include design for replacement or repair of duct work/duct access doors/access panels that are leaking air/energy. Duct work leakage objective is to obtain ASHRAE Standard 90.1, Seal Class A on major supply lines and Seal Class B on return and exhaust lines (possible deduct item).
- G. Provide DDC diagrams, points matrix/listing and project specific sequence of operations based on TVHS standard sequence of operations.
- H. A/E shall develop and execute a quality assurance (QA/QC) plan that demonstrates the team and method of review for the project plans and specifications. The project QA/QC shall have gone through a rigorous, thorough review and coordination effort. The QA/QC plan shall be submitted to the VA along with the project schedule. Within 14 calendars days after receipt of Notice to Proceed, the Contractor shall submit a detailed QA/QC plan describing each QA/QC task that will be taken during the development of the various design submission packages and the name of the Contractor member responsible for QA/QC. Upon its completion, each task shall be initialed and dated by the responsible Contractor member. A 100% completed QA/QC plan shall be submitted with the final construction document submission package.
- I. A/E shall provide bid document preparation in quantities as specified in the contract. VA shall manage the shipping and handling to prospective bidders.
- J. A/E shall provide professional design and construction period services utilizing individuals who are adequately knowledgeable of the various design disciplines including but not limited to architectural and engineering of structural, mechanical, electrical, and special systems as required by the project. Changes in personnel from those who are proposed in negotiations, interviews, kick-off meeting, and/or A-E submission forms must be approved in writing. The services of an industrial hygienist familiar with asbestos abatement will be utilized in the event asbestos is found present and would impact the work. The registered individuals who will stamp the completed documents shall accomplish engineering design work.
- K. A/E shall design within funding limitations. AE shall coordinate cost control measures throughout design. Primary cost control alternatives shall be thoroughly explored in Design Development (DD's). The A/E shall design for a total construction budget of **\$650,000 to \$850,000** and will identify **20** percent of the total construction budget as viable deductive construction alternates by areas of work and/or phases. This will require individual estimates by clearly defined easily deductible areas or work.
- L. Energy efficiency and cost savings shall be considered in design decisions.

VI. BASIS FOR DESIGN:

- A. Department of Veterans Affairs standards may be obtained from the Internet at <http://www.cfm.va.gov/TIL/>. Also see VA Design Manuals at <http://www.cfm.va.gov/til/dManual.asp>
- B. Review VA AE Quality Alerts from the TIL. Special attention to HVAC, Plumbing and Electric Alerts.
- C. Design conditions for all spaces shall be maintained in accordance with the current version of ASHRAE Standard 55.
- D. Comply with relevant section of the TVHS Energy Conservation Requirements and Design Guide, attached. Latest version of the TVHS Energy Conservation Requirements and Design Guide will be provided to the selected A-E.
- E. NAIMA 3E Plus program may also be accessed through the Department Of Energy Industrial Technology Program website.

- F. Design shall conform to VA-PG-18-9 Space Planning Criteria.
<http://www.cfm.va.gov/til/index.asp>.
- G. Comply with VA HVAC Design Guidelines at www.cfm.va.gov/til/dManual.asp. Indoor air quality requirements must be met / maintained, such as outside air percentages, air changes / CFM, and humidity. Design shall maintain building envelopes to prevent moisture infiltration and possible mold growth.
- H. Compliance with the Physical Security design manuals for VA Facilities.
<http://www.cfm.va.gov/til/dmanual.asp>
- I. Comply with ADA, ABA and the VA PG-18-13 Barrier Free Design Guide.
<http://www.cfm.va.gov/til/index.asp>
- J. Comply with VA TIL, PG-18-15, AE Design Submissions and Review.
<http://www.cfm.va.gov/til/aeDesSubReq.asp>
- K. Other related referenced standards and VA guidance:
 - 1. VA TIL, PG-18-3, Design and Construction Procedure
 - a) Topic 15 - Energy efficient and sustainable design policy for VA new construction
 - b) Topic 16 - Sustainable buildings policy for new and VA Renovation construction
 - 2. VA TIL, PG-18-2 Design Guide, 285 Sterile Processing Service.
 - 3. VA HVAC Design Manual for Renovation of Existing VA Facilities, including SPS Specific Guidance in Amendment B (Oct 2011).
- L. Comply with current applicable state, local, and federal building codes and standards as well as codes/standards from other recognized authoritative bodies. This includes, but is not limited to, Associated Air Balance Council (AABC), American Concrete Institute (ACI), Acoustical and Insulating Materials Association (AIMA), 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), Gypsum Association (GA), International Building Code (IBC), National Electric Code (NEC), National Fire Protection Association (NFPA), National Environmental Balancing Bureau (NEBB), National Standard Plumbing Code (NSPC), Occupational Safety and Health Administration (OSHA), Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), Electronic Industry Alliance/ Telecommunications Industry Association (EIA/TIA), American Disabilities Act (ADA), American Barriers Act (ABA) and other applicable codes.

VII. DETAILED SUBMISSION REQUIREMENTS:

Program Guide PG-18-15, establishes the guidelines for the A/E submissions. Design shall be performed and submitted in accordance with VA AE Submission Instructions for Minor and NRM Construction Program. Refer to (<http://www.cfm.va.gov/contract/aeDesSubReq.asp>). These guidelines indicate a minimum level for submission compliance, which may not be adequate for certain, types of design. In some instances in which critical decisions need to be made, sufficient and relevant information has to be provided timely in order for the design to progress to meet certain milestone dates. The level of applicability of the program guide depends upon the scope of work and the exclusions, which are herein specified. Questions in regards to the applicability of specific requirements shall be resolved with the medical center staff prior to any submission deadline. Where "days" are stated, this refers to "calendar" not "work" days.

- A. In addition to the deliverables in the Requirements for AE Design Submissions in the VA Technical Information Library (<http://www.cfm.va.gov/contract/aeDesSubReq.asp>), please provide the following:

1. AE QA mark-ups of each submission with corrected submission.
 2. AE Submission Requirements Checklists from the VA Technical Information Library filled out by the AE with each submission.
 3. Pre-TAB Air Balance Reports with traverses of mains.
- B. At each submission, all drawings and support material shall be dated and appropriately labeled above the title block. All days below are to be interpreted as calendar days:

Work Element	Copies	Duration
Design Kick-off Meeting with NTP		1 Day
Schematic	3	14 Days
Gov't Review		5 Days
Design Development 1	3	21 Days
Gov't Review		5 Days
Design Development 2	3	17 Days
Gov't Review		5 Days
Construction Document 1	3	21Days
Gov't Review		5 Days
Construction Document 2	3	17 Days
Gov't Review		5 Days
Final 100% Bid Document Check set Review	3	1 Day
Total		117 days

- C. VA submission review comments may be verbal, noted directly on review sets, or written list. The AE shall be responsible for compiling & addressing review comments. AE shall produce & distribute meeting notes or minutes for VA review immediately after each submission review meeting.
- D. A/E shall furnish with drawings a separate stamped Life Safety sheet.
- E. For each submission, furnish electronic files in the latest version of Microsoft Office and Microsoft Word and/or AutoCAD 2016. Also submit 2 hardcopies of all drawings. Construction shop drawings are not required to be completed in AutoCAD. Also, submit one half size hard copy of AE DD and CD submittals for energy review.
- F. The 100% construction documents submission will include 2 full set of construction documents including all disciplines/packages and will be sealed and signed by the Architects and Engineers

of Record.

- G. The final construction documents will incorporate all VA supplied comments from the earlier submission package reviews and will comply with the VA RFP.
- H. If the final construction documents are not complete, the AE must resubmit the package in its entirety.
- I. Construction Specifications - Project specifications shall include specifications for all products, materials, equipment, methods and systems shown on the construction drawings in accordance with standard professional practice and the resulting contract. The specification submitted for review shall include: The name of the manufacturer, the product name, model number, or other identification as appropriate to clearly identify the product that will be used in the construction of the project.
- J. Final bid documents shall be reproduced as part of the contract. Two **2** full sets and **2** half set of the Construction Bid Documents are to be delivered to the COR. Electronic files of the Construction Bid Documents will be provided to the COR and Contracting Officer.
- K. The required stamp of the licensed architect or engineer of record will be considered as certification of compliance with the contract requirements.
- L. Total time to accomplish Schematics, DDs, and CDs through final reproduced bid documents shall be **117** calendar days from the issuance of the Notice to Proceed. Each submission will require maximum **5** calendar days for VA review, depending upon the A/E responsiveness to previous VA comments and A/E quality control. A/E shall prepare a submission schedule based upon their understanding of the design and their staffing workload. The schedule is negotiable so that the timeframes are mutually agreeable to the A/E and VA.

VIII. CONSTRUCTION PERIOD SERVICE REQUIREMENTS:

- A. Review of Submittals: A/E shall review all material submittals, shop drawings, test reports (as applicable), etc. Reviews shall be completed and submittals returned to the VA Project Engineer within 7 to 14 days of the A/E's receipt of the submittal.
- B. Review Analysis of Requests for Information, Change Orders, and Costs: A/E shall provide prompt response when contacted by the Contracting Officer to review and provide analysis of; change orders; and resulting cost adjustments due to omissions, errors, ambiguities, etc. A/E shall respond to construction contractor requests for information within 5 calendar days.
- C. Site Visits: A/E shall provide **48** site visits (1 designer for 2 to 3 hours) during the construction period when requested by the Contracting Officer, in addition to the pre-bid conference, in-wall, above ceiling and final inspections. A site visit "unit" is defined as a visit to the site by one individual for any part of a day when requested by the Contracting Officer or VA COR. Multiple "units" when more than one individual or an extended period of time is needed to inspect an area of work. Only registered architects and engineers familiar with the project may make these site visits. The Contracting Officer has the prerogative to determine the professional discipline(s) required for each site visit. The A/E shall notify the Project Engineer of their presence on site in order to document the number of individuals who are making the site visit. The A/E shall observe the construction, advise the Project Engineer of any deviations or deficiencies, and recommend appropriate corrective actions.
- D. "Record Drawings" Requirement: A/E shall revise the solicitation documents if necessary and provide a complete set of all drawings showing actual, completed construction and reflecting any changes incorporated in the work on hard (bond) copy and on electronic media. Electronic media drawings shall be in AutoCAD 2016 and always electronically stamped. A/E shall load and demonstrate full AutoCAD compatibility and functionality at VA site. Compatibility means that data can be accessed directly by target system without translation or processing of data files. Problems shall be corrected to satisfaction of VA. Final electronic media specifications shall be in Microsoft Word 2010 Format and Adobe Acrobat pdf files.

IX. MATERIALS TO BE FURNISHED TO THE A/E BY VA:

The following items will be furnished to the A/E after selection:

- A. Drawing Files – AutoCAD and pdf files of the campus site plan and architectural floor plans are available. Station utility drawings are hard copy only and will be made available for the AE to copy and scan. The accuracy of drawings is not guaranteed and shall be used for general information only. Actual conditions shall be field verified by the A/E.
- B. TVHS Energy Requirements and Design Guide.