PERFORMANCE WORK STATEMENT (PWS)

DEPARTMENT OF VETERANS AFFAIRS
Office of Information & Technology
Austin Information Technology Center (VA-AITC)

Computational Fluid Dynamics (CFD) Analysis of Computer Rooms Project

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1.0 BACKGROUND

The mission of the Department of Veterans Affairs (VA), Office of Information & Technology (OI&T), Service Delivery Engineering (SDE), Enterprise Operations (EO), Data Center Operations (DCO) is to provide benefits and services to Veterans of the United States. In meeting these goals, OI&T strives to provide high quality, effective, and efficient Information Technology (IT) services to those responsible for providing care to the Veterans at the point-of-care as well as throughout all the points of the Veterans' health care in an effective, timely and compassionate manner. VA depends on Information Management/Information Technology (IM/IT) systems to meet mission goals.

The requirement is to provide Austin Information Technology Center (AITC) with computer room Computational Fluid dynamics (CFD) Analysis. Analysis to provide documentation of movement and temperature of air flow throughout data center. Report will indicate necessary air flow to ensure correct volume and temperature to equipment computer room cabinets.

2.0 APPLICABLE DOCUMENTS

Documents referenced or germane to this Performance Work Statement (PWS) are listed below. In the performance of the tasks associated with this PWS, the Contractor shall comply with the following:

1. 44 U.S.C. § 3541, "Federal Information Security Management Act (FISMA) of 2002"
2. Federal Information Processing Standards (FIPS) Publication 140-2, "Security Requirements For Cryptographic Modules"
3. FIPS Pub 201-2, "Personal Identity Verification of Federal Employees and Contractors," August 2013
4. 10 U.S.C. § 2224, "Defense Information Assurance Program"
5. 5 U.S.C. § 552a, as amended, "The Privacy Act of 1974"
6. 42 U.S.C. § 2000d "Title VI of the Civil Rights Act of 1964"
7. VA Directive 0710, "Personnel Suitability and Security Program," June 4, 2010, http://www1.va.gov/vapubs/
8. VA Handbook 0710, Personnnel Suitability and Security Program", September 10, 2004, http://www1.va.gov/vapubs/
9. VA Directive 6102, "Internet/Intranet Services," July 15, 2008
10. 36 C.F.R. Part 1194 "Electronic and Information Technology Accessibility Standards," July 1, 2003
11. OMB Circular A-130, "Management of Federal Information Resources," November 28, 2000
12. 32 C.F.R. Part 199, "Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)"

13. An Introductory Resource Guide for Implementing the Health Insurance Portability and Accountability Act (HIPAA) Security Rule, October 2008
14. Sections 504 and 508 of the Rehabilitation Act (29 U.S.C. § 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998
15. Homeland Security Presidential Directive (12) (HSPD-12), August 27, 2004
16. VA Directive 6500, “Managing Information Security Risk: VA Information Security Program,” September 20, 2012
17. VA Handbook 6500, “Risk Management Framework for VA Information Systems – Tier 3: VA Information Security Program,” September 20, 2012
18. VA Handbook 6500.1, “Electronic Media Sanitization,” March 22, 2010
19. VA Handbook 6500.2, “Management of Data Breaches Involving Sensitive Personal Information (SPI)”, January 6, 2012
20. VA Handbook 6500.3, “Assessment, Authorization, And Continuous Monitoring Of VA Information Systems,” February 3, 2014
21. VA Handbook, 6500.5, “Incorporating Security and Privacy in System Development Lifecycle”, March 22, 2010
22. VA Handbook 6500.6, “Contract Security,” March 12, 2010
23. Project Management Accountability System (PMAS) portal (reference PWS References -Technical Library at https://www.voa.va.gov/pmas/)
24. OI&T ProPath Process Methodology (reference at https://www.voa.va.gov/DocumentListPublic.aspx?NodeId=27) NOTE: In the event of a conflict, OI&T ProPath takes precedence over other processes or methodologies.
25. Technical Reference Model (TRM) (reference at http://www.va.gov/trm/TRMHomePage.asp)
26. National Institute Standards and Technology (NIST) Special Publications
27. VA Directive 6508, VA Privacy Impact Assessment, October 3, 2008
28. VA Directive 6300, Records and Information Management, February 26, 2009
29. VA Handbook, 6300.1, Records Management Procedures, March 24, 2010
30. OMB Memorandum, “Transition to IPv6”, September 28, 2010
31. VA Directive 0735, Homeland Security Presidential Directive 12 (HSPD-12) Program, February 17, 2011
32. VA Handbook 0735, Homeland Security Presidential Directive 12 (HSPD-12) Program, March 20, 2014
33. OMB Memorandum M-06-18, Acquisition of Products and Services for Implementation of HSPD-12, June 30, 2006
34. OMB Memorandum 05-24, Implementation of Homeland Security Presidential Directive (HSPD) 12 – Policy for a Common Identification Standard for Federal Employees and Contractors, August 5, 2005
35. OMB memorandum M-11-11, “Continued Implementation of Homeland Security Presidential Directive (HSPD) 12 – Policy for a Common

Identification Standard for Federal Employees and Contractors, February 3, 2011
36. OMB Memorandum, Guidance for Homeland Security Presidential Directive (HSPD) 12 Implementation, May 23, 2008
37. Federal Identity, Credential, and Access Management (FICAM) Roadmap and Implementation Guidance, December 2, 2011
38. NIST SP 800-116, A Recommendation for the Use of Personal Identity Verification (PIV) Credentials in Physical Access Control Systems, November 20, 2008
39. OMB Memorandum M-07-16, Safeguarding Against and Responding to the Breach of Personally Identifiable Information, May 22, 2007
40. NIST SP 800-63-2, Electronic Authentication Guideline, August 2013
41. Draft NIST Special Publication 800-157, Guidelines for Derived PIV Credentials, March 2014
42. NIST Special Publication 800-164, Guidelines on Hardware-Rooted Security in Mobile Devices (Draft), October 2012
43. Draft National Institute of Standards and Technology Interagency Report (NISTIR) 7981 Mobile, PIV, and Authentication, March 2014
44. VA Memorandum, VAIQ #7100147, Continued Implementation of Homeland Security Presidential Directive 12 (HSPD-12), April 29, 2011 (reference https://www.voa.va.gov/documentlistpublic.aspx?NodeID=514
45. VA Memorandum, VAIQ # 7011145, VA Identity Management Policy, June 28, 2010 (reference https://www.voa.va.gov/documentlistpublic.aspx?NodeID=514)
46. IAM Identity Management Business Requirements Guidance document, May 2013, (reference https://www.voa.va.gov/documentlistpublic.aspx?NodeID=514)
47. Trusted Internet Connections (TIC) Reference Architecture Document, Version 2.0, Federal Interagency Technical Reference Architectures, October 1, 2013
48. OMB Memorandum M-08-05, “Implementation of Trusted Internet Connections (TIC), November 20, 2007
49. OMB Memorandum M-08-23, Securing the Federal Government’s Domain Name System Infrastructure, August 22, 2008
50. VA Memorandum, VAIQ #7497987, Compliance – Electronic Product Environmental Assessment Tool (EPEAT) – IT Electronic Equipment, August 11, 2014 (reference Document Libraries, EPEAT/Green Purchasing Section, https://www.voa.va.gov/documentlistpublic.aspx?NodeID=552)
51. Sections 524 and 525 of the Energy Independence and Security Act of 2007, (Public Law 110–140), December 19, 2007
52. Section 104 of the Energy Policy Act of 2005, (Public Law 109–58), August 8, 2005
53. Executive Order 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” October 5, 2009

54. Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management,” January 24, 2007
55. Executive Order 13221, “Energy-Efficient Standby Power Devices,” August 2, 2001
56. VA Directive 0058, “VA Green Purchasing Program”, July 19, 2013
57. VA Handbook 0058, “VA Green Purchasing Program”, July 19, 2013

3.0 SCOPE OF WORK

Contractor shall perform CFD modelling on VA-AITC Computer Rooms 134 & 140 (approx. 25,000 Sq. ft.). Contractor shall build a virtual representation of computer rooms to help evaluate airflow, thermal loads, checking for adequate airflow rates and cooling capacity. CFD Modeling report shall detail above and below floor. Project shall include the following:

- Future equipment population and design for future build outs
- Additional cooling capacity and inspection of all aspects of cooling system
- Determine the bypass airflow in each computer room
- Disaster recovery planning
- Impact on critical computer servers, in an event of CRAC units failures

Deliverables
Provide a report of survey with findings, recommendations on correcting the deficiencies found and including the following:

- Initial CFD Analaysis of existing layouts derived from data points contractor gathering. Contractor have provide written report shall be provided along with thermal images of computer room.
- Reruns of CFD models to include contractor solutions to help enhance existing environment’s efficiency. Providing recommendations for airflow/cooling improvement
- Measure ambient temperature and relative humidity in each computer room
- Measure input air temperatures to cabinets throughout computer rooms
- Measure total airflow in computer room and in each Cold Aisle
- Below floor CFD Modeling
    - mapping of subfloor obstructions
        - Cable Trays
        - Under floor no airflow regions
        - Building columns
    - Static Pressure Readings
    - CFM Readings from every Perforated Tile
    - Subfloor Velocity readings
- Provide solutions to optimize data center environment.
    - Evaulation of CRAC units airflow and location in computer room

  - Identifying perforated tiles that be removed without affecting airflow balance. Also, perforated tile percentages evaluated for airflow balance.
  - Perform leak management evaluation (e.g. install bruch grommets)
  - Development of return air strategy for more efficient return air back to CRAC units.
  - Monitoring equipment inlet temperature to maximize airflow.
  - Evaulation of overhead Cable Tray effects on return airflow patterns.
- Return on investment report to breakdown the energy savings associated with proposed changes. For example the following:
  - CRAC units set points
  - CRAC fan speeds
- 3D Vitrual Computer Room video to highlight airflow patterns
  - Videos to be provided for each agreed upon solution
- Hard and soft copies of all deliverables

Contractor Qualifications

- Company must have at least five years of experience performing CFD modeling and utilization of 3D software tools, on a minimum 20,000 Sq. Ft. Data Center. Also, providing three (3) project references, for VA-AITC review.

4.0 PERFORMANCE DETAILS

4.1 PERFORMANCE PERIOD

The period of performance shall be five (5) months project duration after contract award. Any work at the Government site shall not take place on Federal holidays or weekends unless directed by the Contracting Officer (CO**).** Any work at the Government site shall not take place on Federal holidays or weekends unless directed by the Contracting Officer (CO).

There are ten (10) Federal holidays set by law (USC Title 5 Section 6103) that VA follows:

Under current definitions, four are set by date:

New Year's Day	January 1
Independence Day	July 4
Veterans Day	November 11
Christmas Day	December 25

If any of the above falls on a Saturday, then Friday shall be observed as a holiday. Similarly, if one falls on a Sunday, then Monday shall be observed as a holiday.

The other six are set by a day of the week and month:

Martin Luther King's Birthday	Third Monday in January
Washington's Birthday	Third Monday in February
Memorial Day	Last Monday in May
Labor Day	First Monday in September
Columbus Day	Second Monday in October
Thanksgiving	Fourth Thursday in November

4.2 PLACE OF PERFORMANCE

Tasks under this PWS shall be performed in VA facilities located at 1615 Woodward Street in Austin, Texas 78772-7830. Work may be performed at remote locations with prior approval of the Contracting Officer's Representative (COR).

Tasks under this PWS shall be performed at Contractor facilities, required engineering project task, account billing and etc..

5.0 SPECIFIC TASKS AND DELIVERABLES

The Contractor shall perform the following:

See section 3.0 above.

5.1 REPORTING REQUIREMENTS

The Contractor shall provide the Contracting Officer's Representative (COR) with Weekly Progress Reports in electronic form in Microsoft Word and Project formats. The report shall include detailed instructions/explanations for each required data element, to ensure that data is accurate and consistent. These reports shall reflect data as of the last day of the preceding week.

The weekly Progress Reports shall cover all work completed during the reporting period and work planned for the subsequent reporting period. The report shall also identify any problems that arose and a description of how the problems were resolved. If problems have not been completely resolved, the Contractor shall provide an explanation including their plan and timeframe for resolving the issue. It is expected that the Contractor will keep in communication with VA accordingly so that issues that arise are transparent to both parties to prevent escalation of outstanding issues.

Deliverables:

A. Weekly Progress Report

6.0 GENERAL REQUIREMENTS

6.1 ENTERPRISE AND IT FRAMEWORK

N/A

6.2 CONTRACTOR PERSONNEL SECURITY REQUIREMENTS

The position sensitivity and the level of background investigation commensurate with the required level of access is:

☒ Moderate/MBI

Contractor Responsibilities:

a. For a Moderate Risk designation, with a period of performance requirement of 180 days or less, a Special Agreement Check (SAC) is required. A Department of Veterans Affairs (DVA) Memorandum – Electronic Fingerprints are required for fingerprinting. This should be submitted to the CO or COR after award has been made.
b. Within 3 business days after award, the Contractor shall provide a roster of Contractor and Subcontractor employees to the COR to begin their background investigations in accordance with the ProPath template. The Contractor Staff Roster shall contain the Contractor's Full Name, Date of Birth, Place of Birth, individual background investigation level requirement of Moderate/MBI SAC. The Contractor shall submit full Social Security Numbers either within the Contractor Staff Roster or under separate cover to the COR. The Contractor Staff Roster shall be updated and provided to VA within 1 day of any changes in employee status, training certification completion status, Background Investigation level status, additions/removal of employees, etc. throughout the Period of Performance. The Contractor Staff Roster shall remain a historical document indicating all past information and the Contractor shall indicate in the Comment field, employees no longer supporting this contract. The preferred method to send the Contractor Staff Roster or Social Security Number is by encrypted e-mail. If unable to send encrypted e-mail, other methods which comply with FIPS 140-2 are to encrypt the file, use a secure fax, or use a traceable mail service.
c. The Contractor should coordinate the location of the nearest VA fingerprinting office through the COR. Only electronic fingerprints are authorized.
d. The Contractor shall be responsible for the actions of all personnel provided to work for VA under this contract. In the event that damages arise from work performed by Contractor provided personnel, under the auspices of this contract, the Contractor shall be responsible for all resources necessary to remedy the incident.

e. A Contractor may be granted unescorted access to VA facilities and/or access to VA Information Technology resources (network and/or protected data) with a favorably adjudicated Special Agreement Check (SAC) or "Closed, No Issues" (SAC) finger print results, training delineated in VA Handbook 6500.6 (Appendix C, Section 9), and, the signed "Contractor Rules of Behavior." The investigative history for Contractor personnel working under this contract must be maintained in the database of the Office of Personnel Management (OPM).
f. The Contractor, when notified of an unfavorably adjudicated background investigation on a Contractor employee as determined by the Government, shall withdraw the employee from consideration in working under the contract.
g. Failure to comply with the Contractor personnel security investigative requirements may result in loss of physical and/or logical access to VA facilities and systems by Contractor and Subcontractor employees and/or termination of the contract for default.
h. Identity Credential Holders must follow all HSPD-12 policies and procedures as well as use and protect their assigned identity credentials in accordance with VA policies and procedures, displaying their badges at all times, and returning the identity credentials upon termination of their relationship with VA.

Deliverable:

A. Contractor Staff Roster

6.3 METHOD AND DISTRIBUTION OF DELIVERABLES

The Contractor shall deliver documentation in electronic format, unless otherwise directed in Section B of the solicitation/contract. Acceptable electronic media include: MS Word 2000/2003/2007/2010, MS Excel 2000/2003/2007/2010, MS PowerPoint 2000/2003/2007/2010, MS Project 2000/2003/2007/2010, MS Access 2000/2003/2007/2010, MS Visio 2000/2002/2003/2007/2010, AutoCAD 2002/2004/2007/2010, and Adobe Postscript Data Format (PDF).

6.4 PERFORMANCE METRICS

The table below defines the Performance Standards and Acceptable Performance Levels for Objectives associated with this effort.

Performance Objective	Performance Standard	Acceptable Performance Levels

1. Technical Needs	Shows understanding of requirements Efficient and effective in meeting requirements Meets technical needs and mission requirements Offers quality services/products	Acceptable/ Unacceptable
2. Project Milestones and Schedule	Quick response capability Products completed, reviewed, delivered in timely manner Notifies customer in advance of potential problems	Acceptable/ Unacceptable

The Government will utilize a Quality Assurance Surveillance Plan (QASP) throughout the life of the contract to ensure that the Contractor is performing the services required by this PWS in an acceptable manner. The Government reserves the right to alter or change the surveillance methods in the QASP at its own discretion. A SAP Performance Based Service Assessment Survey will be used in combination with the QASP to assist the Government in determining acceptable performance levels.

6.5 FACILITY/RESOURCE PROVISIONS

N/A