

# **Statement of Work**

## **Building Automation System (BAS) Repair Service**

### **United States Embassy, Abuja, Nigeria**

#### **I GENERAL INFORMATION**

The United States Embassy, Abuja requests a qualified contractor (Engineer/Specialist/Technician) on Building Automation System to service, repair, test run, and commission the system properly after fixing all the associated problems at United States Embassy Compound, Plot 1075, Diplomatic Drive, Central Business District (CBD), Abuja.

#### **II PROJECT REQUIREMENTS**

In addition to the requirements of Section III below, the contractor shall provide as-built drawings showing all changes to the BAS system as a result of the work carried out in this contract. Contractor is also required to fully update the BAS graphics to reflect the new design.

##### **II.1 GENERAL REQUIREMENTS**

1. The contractor will be responsible for labor, tools, equipment and materials required to carry out all works, unless otherwise stated in this Statement of Work (SOW) and as directed by the Contracting Officer's Representative (COR).
2. The contractor is to prepare and submit a quote formulated from this SOW and the walkthrough of the location to be approved prior to submission.
3. The contractor is responsible for verifying all measurements and quantity of materials required to complete this work.
4. The contractor is to provide samples and product data of material as requested by the COR, for compliance approval by the COR prior to the procurement and installation.

5. The contractor is to provide a detailed work schedule prior to commencement of work as indicated in item 10 of this section indicating start, finish, and important millstone dates.
6. The contractor shall be responsible for the repair of any damage to existing buildings, ceilings, above ceiling, aboveground, underground utilities and structures caused by his staff during the period of the contract execution.
7. The contractor must abide by United States Government enhanced codes and regulations or local safety codes and standards, whichever are more stringent during the project.
8. US codes that may apply to the project include the International Building Codes (IBC), ASHRAE 135 for DDC system control components, NFPA 70, NFPA 90A for Installation of Air conditioning and ventilation systems and Occupational Safety and Health Administration (OSHA) standards. The USG is not liable for injuries to the contractor's staff caused by the contractor's activities. The USG is not responsible for provision of required safety equipment and will not hesitate to stop project work in the event a deficiency in compliance with relevant safety standards is observed. The Contractor's personnel must wear personal protective equipment (PPE). PPE includes protective clothing, shoes, gloves, eye and ear protection.
9. The contractor must ensure that all materials to be used are new and in conformance to the materials presented in the approved bill of quantities and as submitted and approved prior to the start of work unless prior approval of substitutes has been provided by the COR or his designate.
10. Contractor shall be responsible for informing the COR or his designate of the following critical inspection points designated by the COR:
  - a. Inspection of supplied material
  - b. Modification drawings
  - c. Sensors and other control devices installation
  - d. Testing/Recommissioning of the entire system

11. The Contractor shall be responsible for marking off a safe working area with caution tape or other warning devices at each station before commencement and during the project.
12. The Contractor must submit to the COR the names of personnel working on the project and all vehicle descriptions no, tag numbers requiring compound access at least 48 hours in advance of project start for clearance by the USG. The contractor's personnel must be always escorted by USG representatives while on the embassy compound (applied to no cleared personnel). Photo identification required to access the Embassy compound.
13. Work hours for this project will be the typical U.S Embassy business hours of 0730hrs to 1630hrs Monday to Thursday and 0730hrs to 1330hrs on Friday. Different workdays or hours must be pre-approved by the COR and must be requested a minimum of 48 hours in advance from the contractor. USG will not be responsible for any down time or effects to the project schedule as may arise due to contractor's noncompliance with this notification requirement.
14. The job site shall be kept in a neat, clean, and orderly condition always during the installation process, no material or uninstalled equipment is to be stored in other than COR-Designated locking. All scrap and excess materials are to be removed from the site daily. The means of material disposal should be properly coordinated with the COR.
15. Raceways, supports systems and wiring installations shall comply with the section 16050\_Basic electrical materials and methods for all the conduits, wireways and cablings above /below ceilings and section 15900\_HVAC instrumentation and controls.
16. Installer Qualifications: Experienced installer who is an authorized representative, certified installer, and /or approved installer of automatic control system manufacturer (Schneider Electric AX/N4software) for both installation and maintenance of the units required for this project.

### **III. Scope of work are as follows:**

The contractor shall provide the following:

- 1- Install, program and commission duct sensors on HVAC duct works in Chancery building. AHUs ductworks in Chancery presently have Ebitron airflow stations at the supply, return and outside air ducts which measures and displays both air flow (in L/S) and temperature (degree centigrade). We now have need to replace these Ebitron flow stations with individual air flow meters, temperature sensors and humidity sensors where required. Total number of Ebitron flow stations in Chancery to be replaced by individual sensors of air flow meters and temperature sensors are nineteen (19) for the Chancery AHUs #1 through #7). See attached Appendix 1.
- 2- Troubleshoot and fix the Chancery EOB-AHU-1&2 very low space static pressure readings. Both AHU space pressures are always way below the space static pressure set point of 5.0 Pa. E.g. AHU#2 static pressure reading stays at -17Pa as against the set point of 5.0 Pa
- 3- Troubleshoot and fix the chancery EOB-AHU-2 temperature/ pressure in-balance especially on Level 3 of the Chancery building and the continual on/off of the unit (EOB-AHU-2). Symptoms observed in this regard are such that some spaces seem to always stay below set points while others hardly meet their temperature setpoints.
- 4- Fix EOB-AHU-3 chilled water valve graphic problem. Graphics indicate the valve fully closed when it is fully open on site.
- 5- Review and recommend possible solutions to multiple office spaces utilizing common thermostat in the Chancery building which

occasionally leads to overcooling one office/space while the other space is warm. Recommendations shall at a minimum include:

- A. Detailed analysis of the solution being proposed
- B. Cost estimates for the proposed solution to include relevant parts and man hour estimates.
- C. Standards and regulations guiding such solutions being proposed.

Report shall be in soft copy e-mailed to the COR.

- 6- Update the graphics of the enterprise computer to reflect amended floor plans and other documents where applicable of Abuja Embassy BAS system. USG will furnish soft copy of such building plans.
- 7- Troubleshoot and verify that all applicable pick-up points for the York water-cooled chiller are obtainable on the enterprise computer.

#### **IV PROJECT COMPLETION**

The Contractor shall commence work under this contract promptly, execute the work diligently, and achieve final completion and acceptance including final cleanup of the premises within the period specified. USG reserved the right to adjust the schedule and/or phasing plan of the contractor as convenient to its operation.

Preliminary and final acceptance:

- After completing the execution of a unit or portion thereof, the Contractor shall give a notice in writing stating that the job is complete in all respects and ready for preliminary acceptance.

- Contractor and USG representatives shall jointly inspect the job. All observed defects and omissions as per SOW, workmanships and specifications shall be noted down and tracked as punch list items.
- The Contractor shall make good all defects, deficiencies and omissions noted down during preliminary acceptance and shall inform in advance the USG representatives for conducting inspection for final acceptance.
- Final acceptance shall be communicated in writing through the contract COR to the contractor

Appendix 1: Ebitron Air Flow Stations and duct sizes for Chancery duct work.

EBTRON AIR FLOW STATIONS

			WIDE	HIGH	WIDE	HIGH			
Mark	AHU	SERVICE	MM	MM	INS	INS	Model	Configuration	Quantity
No.1	1	OUTSIDE	500	300	20	12	STA104P	1 Probe-2Sensor	1
No.2	1	RETURN	1000	750	40	30	STA104P	1 Probe-3Sensor	1
No.3	1	SUPPLY	1000	600	40	24	STA104P	1 Probe-2Sensor	1
No.4	2	OUTSIDE	700	400	28	16	STA104P	1 Probe-2Sensor	1
No.5	2	RETURN	1300	1200	52	48	STA104P	2 Probe-2Sensor	1
No.6	2	SUPPLY	1000	1250	40	50	STA104P	2 Probe-2Sensor	1
No.7	3	OUTSIDE	900	500	36	20	STA104P	1 Probe-2Sensor	1
No.8	3	RETURN	1200	1000	48	40	STA104P	2 Probe-2Sensor	1
No.9	3	SUPPLY	1250	900	50	36	STA104P	2 Probe-2Sensor	1
No.10	4	OUTSIDE	600	400	24	16	STA104P	1 Probe-2Sensor	1
No.11	4	RETURN	750	500	30	20	STA104P	1 Probe-2Sensor	1
No.12	4	SUPPLY	750	400	30	16	STA104P	1 Probe-2Sensor	1
No.13	5	OUTSIDE	450	250	18	10	STA104P	1 Probe-2Sensor	1
No.14	5	RETURN	750	750	30	30	STA104P	1 Probe-3Sensor	1
No.15	5	SUPPLY	750	650	30	26	STA104P	1 Probe-3Sensor	1
No.16	6	OUTSIDE	450	250	18	10	STA104P	1 Probe-2Sensor	1
No.17	6	RETURN	750	750	30	30	STA104P	1 Probe-3Sensor	1
No.18	6	SUPPLY	750	650	30	26	STA104P	1 Probe-3Sensor	1
No.19	7	SUPPLY	800	1000	32	40	STA104P	2 Probe-2Sensor	1