

SCOPE OF WORK

FOR

Replacement of existing VFDs with Siemens G120 (HVAC)

**U.S. EMBASSY
Sofia, Bulgaria**

June 2024

Embassy Siemens VFDs Scope of Work

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I. INTRODUCTION

This Statement of Work (SOW) outlines the scope, objectives, and requirements for the replacement of existing Variable Frequency Drives (VFDs) SED2 with new Siemens G120 VFDs. The project involves the replacement of 26 units and encompasses installation, parametrization, testing via Building Automation System (BAS), and commissioning. The existing system is located at US Embassy Sofia, 16 Kozyak str.

- II. SCOPE: The purpose of this scope of work (SOW) is to define the requirements for the installation and commissioning work procedures. Work shall be done in accordance with this SOW, and with referenced codes. The work shall consist of the furnishing of all materials and labor, necessary for the complete installation work in accordance with the following scope of work and specifications. It is the intent of these SOW, to form a guide for the mounting work that needs to be performed. Therefore, any minor items not specifically noted, but reasonably necessary for a complete maintenance and repair shall be furnished under this Contract and included in the unit prices, no separate payment will be made for any minor items. The replacement, installation and the commissioning shall efficiently cover the whole Embassy VFD units and should follow the following steps:

Conduct preliminary coordination with the post via telephone and e-mail, to accomplish, as minimum, the following:

- a. Obtain from Sofia Embassy Facility Management Section technical documentation for the existing location that will facilitate accomplishment of project required under this SOW.
- b. Advise post on what preparations will need to be made for the project and what data the post should collect and make available to the contractors.
- c. The Contractor will be allowed a site visit during the pre-bid meeting to obtain an overview of the project and site conditions to allow for proper cost estimating, and scheduling of work. Work should be approved and done during weekdays, and for some units Only weekends are allowed. This will be discussed on later stage with the company that will win the tender.

2. Codes, permits and licenses

- a. Materials, construction, and installation procedures shall conform to all Codes and Regulations governing the trades included in this work. The Contractor shall obtain and pay for all necessary permits required for this work if required. Permits are required for hot work, electrical work and welding if needed.
- b. Contractor shall be licensed for work to be performed. The Contractor shall carry out the work in accordance with all applicable statutes and regulations relating to pollution control of water and air.

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3. Quantities

The work should follow the steps listed below:

3.1. Replacement of VFDs

- Removal of existing VFDs (SED2) from designated locations.
- Installation of new Siemens G120 VFDs in place of the removed units using new mounting plates
- Mounting of the Siemens G120 VFDs according to manufacturer specifications

3.2. Parametrization

- Configuration and parametrization of the Siemens G120 VFDs to meet the specific requirements of each application.
- Setting up control parameters, including but not limited to motor parameters, speed control settings, and communication protocols.

3.3. Testing and Integration with BAS:

- Verification of proper functionality and performance of each Siemens G120 VFD.
- Testing of communication between the VFDs and the Building Automation System (BAS) to ensure seamless integration.
- Conducting performance tests to validate the operation of the VFDs under various load conditions.

3.4. Commissioning:

- Comprehensive commissioning of the entire system to ensure compliance with project specifications and industry standards.
- Documentation of commissioning procedures and results.
- Electrical drawings if there are any changes

4. Working conditions

- a. All losses or damage to equipment, to the Government property, while in the possession of or being used by the Contractor, shall be the responsibility of the Contractor, and he shall repair, replace, or otherwise compensate for any such loss. The Contractor always at his own expense shall provide adequate security of materials and work on site. The working area shall be kept clean of all debris, waste, or dirt. Clean-up and removal of all equipment, excess materials, etc., shall be completed before acceptance will be approved by the client.
- b. Overtime work will be at the Contractor's option and expense, unless requested in writing by the COR.

5. Workmanship

- a. The Contractor shall have had considerable experience and demonstrated ability in the building, commissioning, and installation activities of this type.

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- b. All work shall be performed by skilled persons proficient in the trades required, in a neat, orderly, and responsible manner, with recognized standards of workmanship.
6. Quality assurance
- a. All work shall be inspected and approved by the COR, for correctness and completeness which includes permission and safety plan.
 - b. The Contractor shall guarantee all materials, equipment, and installation work, for a period of ONE year against defective workmanship and handling.
7. Warranty
- a. Warranties shall become effective from the date of the Completion Certificate and cover period of one year
 - b. The warranty will include but not limited to the following specific items in addition to the normal warranty coverage
 - Malfunction of the equipment
 - Repair and/or replace materials which do not meet the Specifications and whose substitution was not approved by COR
 - Correct any works not in accordance with the SOW unless specifically authorized by the COR, which may be discovered during the warranty period.
8. When on site, the Contractor shall do following.
- a. **Personnel Qualifications:** The contractor will employ only qualified, experienced and well-trained workers who are skilled in performing the requirements of this service contract. They will be physically able to perform the assigned work.
 - b. **De-energizing/Energizing Equipment:** The contractor shall not turn off or on any Embassy-owned equipment. All de-energizing/energizing equipment will be coordinated through Embassy on-site personnel.
 - c. **Environmental Health & Safety Requirements:** The contractor shall designate a Safety Officer, who is familiar with the latest edition of the OHSAS regulations.
9. Repair and instruction obligations.
- a. During the execution of this Contract, the Contractor shall keep a technically qualified person on the job full time and maintain adequate labor and equipment at the site to immediately repair the system or components in the event of any leak of failure.

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- b. Prior to completion of the job, the Contractor shall thoroughly instruct the Owner's personnel in the proper operation, maintenance and repair of the system.

10. Units that are subjects for replacements:

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- LL L.01 SED2 – 15 kw
- LL L.02 SED2 – 22 kw
- LL L.03 SED2 – 18.5 kw
- LL L.04 SED2 – 2.2 kw
- LL L.05 SED2 – 15 kw
- LL NOB – EF- L02 – 1.5 kw

- L3 P.01 SED2 – 7.5 kw
- L3 P.02 SED2 – 15 kw
- L3 P.03 SED2 – 15 kw
- L3 P.04 SED2 – 22 kw
- L3 P.05 SED2 – 15 kw
- L3 P.06 SED2 – 4 kw
- L3 P.07 SED2 – 2.2 kw
- L3 P.08 SED2 – 2.2 kw

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- WHE-EF-R.12 SED2 – 1.1 kw
- WHE-HXP-1.01 SED2 – 4 kw
- WHE-CT-1.01 SED2 – 7.5 kw
- WHE-HWP-1.01 SED2 – 18.5 kw
- WHE-CHP-1.01 SED2 – 15 kw
- WHE-HWP-1.02 SED2 – 30 kw
- WHE-HXP-1.02 SED2 – 30 kw
- WHE-CT-1.01 SED2 – 7.5 kw
- WHE-HVU-R.01 SED2 – 7.5 kw
- WHE-DC-XSG SED2 – 11 kw
- WHE-DC-XS7 SED2 – 11 kw

- MSGQ SED2 – 5.5 kw

11. Site safety – The installation and commissioning of the Siemens G120 VFDs shall adhere to the following US standards and regulations:

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11.1. National Electrical Code (NEC):

- Compliance with NEC requirements for electrical installations, wiring methods, and equipment.

11.2. National Fire Protection Association (NFPA):

- Adherence to NFPA standards pertaining to electrical safety and fire protection. 15 FAM 957.7 Electrical safety work practice requirements

11.3. Occupational Safety and Health Administration (OSHA):

- Ensuring worker safety in accordance with OSHA regulations for electrical installations and workplace safety. EM 385-1-1 Safety & Health requirements manual and Appropriate PPE.

11.4. Manufacturer Guidelines:

- Following Siemens' installation, operation, and maintenance instructions provided in the product manuals and technical documentation.

13. Maintenance and clean-up of work site

- a. The Contractor shall be responsible to maintain and cleanup the work site on an ongoing basis from the commencement of installation to the completion of the project.
- b. The work site shall be maintained in an orderly manner and shall not be used to store the Contractor's equipment and materials, which are not used for this project.
- c. Waste, debris, unnecessary excess material shall not be stockpiled on the work site and shall be disposed of property by the Contractor.

14. Project Deliverables:

Upon completion of the project, the following deliverables will be provided:

- Documentation of removed VFDs.
- Installation records and documentation for each Siemens G120 VFD.
- Parametrization settings for each VFD.
- Test reports detailing testing procedures, results, and any corrective actions taken.
- Commissioning documentation, including verification of compliance with standards and regulations.

15. Project Timeline:

The project timeline shall be as follows:

- Preparation Phase: 30 days
- Installation Phase: 30 days, including weekends
- Testing and Integration Phase: 10 days, including weekends
- Commissioning Phase: 10 days, including weekends

16. Project Responsibilities:

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- Client: Provide access to existing VFDs and necessary facilities. Review and approve project deliverables.
- Contractor: Execute the installation, parametrization, testing, and commissioning activities according to the agreed-upon scope and schedule. Ensure compliance with all applicable standards and regulations.

17. Electrical drawings example:

This is an overview of the existing electrical diagram for one of the VFDs.



electrical scheme
example.pdf

III. POC AT POST

All questions concerning the scope and requirements of the U.S. Embassy, shall be directed to the POC (see below):

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END OF SCOPE OF WORK