

**AIR CONDITIONING REPLACEMENT FOR US GOVERNMENT  
RESIDENCE**

**CAIRO, EGYPT**



**Description, Specifications,**

**And**

**Work Statement**

**Date: Aug., 2015**

## **INDEX:**

- 1- GENERAL REQUIREMENTS
- 1.1 General
- 1.2 Summary of work
- 1.3 Work description:
- 1.4 Contractor provided services
- 1.5 Submittals
- 1.6 Alteration and coordination
- 1.7 Grades, lines and levels
- 1.8 Construction work procedure
- 1.9 Special project procedures
- 1.10 Schedule
- 1.11 Security Procedures
- 1.12 Safety regulations

# **1- GENERAL REQUIREMENTS**

## **1.1 General**

This statement of work covers the work required at US government owned Residential properties at Maadi and Zamalek area.

## **1.2 Summary of work**

1. Dismantle the existing air conditioning unit and hand it out to the COR thru a transfer sheet.
2. Supply, install new Air condition split unit model 53QDMT 36-718 with Heat Pump or approved equal.
3. Supply and install new duct work for the supply air to the evaporator unit.
4. Insulate the supply air duct work and the Freon piping.
5. Supply, install new power and control feeder for the new air conditioning unit.
6. Supply, install drain pain and drain piping in connection for the new air conditioning unit.

The project work is required to be implemented in the following locations as follows:

- Maadi Compound at Street 11, Building 11.
- Maadi Compound at Street 17, building 55.
- FBOZ, Zamalek, Downtown at 4 Mahmoud Azmi.

## **1.3 Work description:**

### **A) Air conditioning split unit**

The extent of the A/C work shall include the installation of the condensing unit (outdoor type) and evaporator unit (indoor type), the Freon line insulation and rapping with a silver tape.

It is also include pulling of all electrical power and control connections between the indoor and the outdoor units.

Pipes and conduits passing through masonry wall, voids shall be filled with latex mortar cast to shape of sleeve and provide flange/external collar type sleeve.

Wires shall be color coded build in metal conduits with total length of around 20 meters for each unit and connection shall be in Metal Box and all A/C components shall be wired with grounding system.

The work includes leveling and plumbing the unit. Perform startup checks according to Manufacturer's written instructions.

All Freon copper piping shall be type M with total length of around 20 meters for each unit. The run shall include Oil Traps as needed.

Conceal the Freon piping and conduits in a Galvanized Steel C-shape 0.8 mm thick 5 meters length trunking for Piping with dimensions 20cm\*10cm. The trunking shall be Electrostatic painting with a suitable matching color.

Supply duct shall be connected with existing duct by Flex connection Canvas with standard dimension 70 mm\*100 mm\*70 mm.

Drain line shall be 3/4" PVC pipes (White) with 3m length, supported including all connections, P-trap to be connected to existing Drain riser.

Additional drain pan underneath the condenser unit shall be provided with Galvanized Steel 1 mm thick with dimensions of Condenser unit. The pan shall include a nozzle to drain the pan to the drain line.

## **B) Sheet Metal Work:**

The extent of work under this section covers supply air duct work required for the new split air conditioning unit as detailed below.

Installation shall be accordance with SMANCA HVAC Duct Construction standards. Rectangular duct sections may be joined by use of approved mechanical coupling systems. Install hangers for ductwork sufficient for the duct sections. Use galvanized steel strap hangers. Provide cross bracing, angle iron hangers as required for rigid and adequate supports. Wrap the insulation properly around the duct work using aluminum tape and wires as required.

### 1- Duct work:

The scope covers the addition of supply duct from the evaporator to the air grills. All duct work shall be insulated with 2" insulation thickness and 24 Kg/m<sup>3</sup> density with aluminum cover vapor barrier.

Metal sheets: Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having Z275 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view with 0.8 mm thick.

### 2- Duct insulation:

Use Knauf Fiberglass materials. Mineral-Fiber Blanket Thermal Insulation or equal approved (apply to exterior of duct surface only): For exterior of duct and casings, glass fibers bonded with a thermosetting resin with all-service jacket manufactured from reinforcing scrim, aluminum foil, and vinyl film. Internal duct shall be insulated with Arm flex with 20 mm thick.

### 3- Duct sealant:

Joint and Seam Sealants: The term "sealant" is not limited to materials of adhesive or mastic nature but includes silicon and tapes and combinations of open-weave fabric strips and mastics.

Joint and Seam Tape: 50 mm wide; glass-fiber-reinforced fabric.

Angles, tie rods and shapes: Galvanized steel, 6-mm minimum diameter for lengths 900 mm or less; 10-mm minimum diameter for lengths longer than 900 mm.

### 4- Screws and rivets:

Shall be provided as per manufacturer recommendations.

### C) **Electric work:**

#### 1- GENERAL:

The extent of the electric work shall include the electric connection between the indoor unit and the outdoor unit.

Protective earth conductors are to be run with all circuits in accordance with the NEC 70 (article 250).

Wherever electrical services are crossing a fire zone / compartment, the contractor shall provide adequate fire barriers .

In the absence of any indication on the drawings or in the specifications, the installations are to be in accordance with NEC 70.

The Conductors for air conditioning unit shall be 6 mm<sup>2</sup> Cu-PVC wires and the control wiring shall be 7x1mm<sup>2</sup> Cu-PVC (or as per the manufacturer recommendation).

#### 2- PRODUCTS:

All materials will be supplied and installed by the contractor.

- Wires and cables, products of (El Sewedy), or equal approved
- Conduits and boxes, products of (Allied) or equal approved

### 1.4 **Contractor provided services**

All materials shall be in accordance with the U.S. and local codes and as approved by the COR.

Work shall be governed by the latest edition of the International Building Code (IBC), and National Electric Code (NEC) and Carrier Manufacture recommendations. Work not in compliance with the IBC, NEC and Carrier Recommendations shall be deemed unacceptable. Egyptian code is acceptable provided it is more stringent than the aforementioned codes.

### 1.5 **Submittals**

#### 1.5.1 The contractor shall submit **as part of his bid, the following:**

1. Preliminary construction schedule.
2. Technical data for all used materials.
3. Safety plan according to the SAFETY AND HEALTH REQUIREMENTS of the US Army Corps of Engineers-EM 385-1-1 which will be reviewed by the A/POSHO

#### 1.5.2 After contract award the contractor shall submit the following;

1. A Construction schedule by working days on each job.
2. Sample for Electrical wire, control wire, copper piping, metal conduit, duct sheet, insulation and support.

### 1.6 **Alteration and coordination**

Work under this contract involves the coordination of different activities during the entire project, including the preparation of drawings, diagrams and schedules from commencement to completion (and warranty periods).

Alterations and amendments: where applicable, requirements of contract documents apply to alteration and amendment works in same manner as for the work under this contract.

## **1.7 Grades, lines and levels**

Where new work is to connect to existing work, dimensions and elevations of existing work must be verified. Any discrepancy between drawings and/or specifications and existing conditions shall be referred to the COR for adjustment before work affected has been performed. In the event of the contractor's failure to give such notice, he will be held responsible for results of any discrepancies and costs of rectifying them. The submission of the bid will be conclusive evidence that the bidder has complied with all conditions related to the character, quality and quantity of work requirements to be performed. No claims for additional time or compensation due to variations between existing and conditions encountered during construction will be honored.

## **1.8 Construction work procedure**

- 1.8.1 Where new work under this project disturbs existing work, the affected surfaces shall be repaired or refinished to match the existing and left in as good condition as existed before the commencement of the work. Materials and workmanship used in such repair work, unless otherwise indicated or specified, shall conform in type, quality and appearance to the original existing construction.
- 1.8.2 The contractor shall be subject to and shall at all times conform to the Contracting Office Representative's (COR) requirements for the protection of the Complex, plants, equipment, and materials. Welding, burning, and cutting operations in existing areas are prohibited unless otherwise approved in advance by the COR.
- 1.8.3 Field supervision: At all times, during any performance of the work conducted by the contractor, the contractor shall have English speaking technically qualified representative on site. The COR shall have the right to determine whether the proposed representative has sufficient technical and lingual capabilities, and the contractor shall immediately replace any individual not acceptable to the COR at no change in contract price.
- 1.8.4 Trash and building materials removed under this contract shall be removed from site on a daily basis. After completion of all work, the contractor shall remove all remaining materials and any equipment that does not belong to the United States Government (USG), leaving the site neat and clean with all functions operating.

## **1.9 Special project procedures**

- 1.9.1 All work shall be performed from 8:00 a.m. to 8:00 p.m., Saturday through Thursday except for the holidays identified in the holiday schedule attached, which are considered non-working days. Other hours may be approved by the COR with at least 24 hours advance written request.

1.9.2 Storage, loading, unloading, and trash removal shall be inside the premises of the villa and not on the street or outside the property. Violation of this condition and results of this violation will be the complete responsibility of the contractor.

### 1.9.3 Existing Conditions

1. Before beginning site work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
2. Acceptance of Conditions: Examine substrates, areas, and conditions; verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of conditions.
3. The submission of the bid will be conclusive evidence that the bidder has complied with all conditions related to the character, quality and quantity of work requirements to be performed. No claims for additional time or compensation due to variations between existing and conditions encountered during construction will be honored. Failure of the contractor to thoroughly inspect and identify defects, if any, shall not release him from the responsibility to guarantee the whole works (Existing to remain, and new works) for the period specified in the contract terms.

### 1.9.4 Protection of installed construction

Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

### 1.9.5 Correction of the work

1. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
2. Restore permanent facilities used during construction to their specified condition.
3. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
4. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

## 1.10 Schedule

The contractor shall submit detailed schedule showing each activity along with its duration, predecessors, and successors. A computerized schedule is preferred; however, a scaled bar chart may be acceptable, this schedule shall be accepted by COR.

## **1.11 Security Procedures**

1.11.1 All of the contractor's personnel shall be subject to all the security procedures required for clearance of personnel working inside U.S. Embassy residential Compounds. These requirements shall include:

1. Submission of valid finger prints, addressed to the US Embassy and copy of the Egyptian ID, two week prior to the required date to access the site.
2. Access for trucks shall be granted on a 48 hours (two working days) advance notice showing: 1) Drivers name 2) Copy of driver's ID 3) Truck description and plate number, and 4) Date and time access required.
3. Access for daily labors can be given for three days, with a 48 hours advance notice showing the name of the persons, ID #, date and place of issue, and a copy of the ID. Labors for three days access will be given that for one time only.
4. All contractor personnel shall be subject to a daily check (in and out) by the government guard personnel.

1.11.2 Failure of the contractor to fulfill any security requirement in a timely manner shall not be constructed as a base for any time and money extension.

Delay or suspension of work due to the US government security regulations or requirements shall not be a base for claims.

## **1.12 Safety regulations**

1.12.1 All of the contractor personal shall be subject to comply with the safety procedures implemented by the SAFETY AND HEALTH REQUIREMENTS of the US Army Corps of Engineers - EM 385-1-1

**Please check the link below**

:

<http://www.usace.army.mil/SafetyandOccupationalHealth/SafetyandHealthRequirementsManual.aspx>

And

[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM\\_385-1-1\\_2008Sep\\_Consolidated\\_2011Aug.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_385-1-1_2008Sep_Consolidated_2011Aug.pdf)