

STATEMENT OF WORK
RENOVATION OF RESIDENTIAL BUILDING S-94

TO MEET INTERNATIONAL BUILDING AND SAFETY CODES
GENERAL CONSTRUCTION SERVICES
U. S. CONSULATE GENERAL
ERBIL, IRAQ

26 SEPTEMBER 2018

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1.0 PROJECT DESCRIPTION

1. PROJECT SYNOPSIS

The project is described as “Renovation of Residential Property S-94 at the U. S. Consulate General, Erbil, Iraq”. The contractor should furnish all necessary materials, labor, transportation, equipment, investigation and supervision, etc. Work will be performed within the fixed-price contract.

2. BACKGROUND

At present, the property S-94 does not meet U.S. fire, life safety, or security standards. The residence must be upgraded to address various things such as wiring, windows, plumbing, electrical, mechanical, finishes and security concerns.

3. SOLUTION

Improve life safety conditions by replacing all the windows, security grills, sanitary, mechanical and electrical internal panel boards and installing Ground Fault Circuit Interrupting (GFCI) breakers for all areas as required. Confirm, repair/replace/install grounding for all electrical circuits within the building per NEC. Install additional new circuits as necessary. Upgrade residence condition by installing a kitchen on the first floor, upgrade bathrooms (one each floor), and install laundry room on second floor. Upgrade the electrical system by changing the internal panel boards with a molded case panel; ensure all power outlets and equipment are grounded in accordance with the NEC. Place all wires and cables in conduit and using a NEMA waterproof cover for all outdoor power outlets. Paint the exterior and interior walls and ceilings.

2.0 GENERAL CONDITIONS

- A. Fixed-Price Proposal.** The contractor shall provide one fixed-priced Proposal for the complete Project that includes every aspect of the work.
- B. Specifications.** The work shall be governed by the U.S. Consulate General, Erbil, Iraq. International codes include the National Fire Prevention Association (NFPA), International Building Code, International Mechanical Code, International Plumbing Code, and the National Electric Code (NEC). Should there be a discrepancy between the U. S. Consulate General Specifications and the applicable Building Code, the more stringent of the two shall govern.
- The contractor is responsible for compliance with all Building Codes; Work not in compliance with the codes shall be deemed to be unacceptable.
- C. Execution.** The work shall be executed in a diligent and workmanlike manner in accordance with the negotiated fixed-price, this Scope of Work, the Project Schedule, International Building Codes, and the laws of the City of Erbil where applicable.
- D. Work Hours.** Unless otherwise agreed with COR, the Work shall be executed during normal Consulate work hours. Night, weekend or holiday work shall not be permitted except as arranged in advance with the COR. U.S. Consulate General holiday schedule is available from the COR.

- E. Safety.** The contractor shall be responsible for conducting the work in a manner that ensures the safety of residents, employees and visitors to the compound, and the contractor's employees.
- F. Workforce.** The contractor shall provide all supervision, skilled and unskilled labor needed to perform the work. The contractor shall comply with the U.S. Consulate General security policy by providing approved escorts. Contractor provided escorts shall be in quantity sufficient to comply with RSO escort ratios for number of workers on the project. The contractor shall prepare requests to RSO for vetting of employees to get escort badges. The contractor or government may request for workers to be badged for unescorted U. S. Consulate General access by going through the RSO vetting process.
- G. Subcontractors.** Contractor shall be responsible for the conduct and workmanship of subcontractors engaged in the project, and for subcontractors compliance with the terms of this Statement of Work. The contractor is responsible for the behavior and workmanship of subcontractors while on Consulate property.
- H. Modification to Contract.** The contractor shall not incur any costs beyond those described in this SOW unless directed otherwise in writing by the Contracting Officer. Any work performed by the Contractor beyond this SOW without written direction from the Contracting Officer will be at the contractor's own risk and at no cost to the Consulate.
- I. Stop Work.** At any time during the project, the Contracting Officer reserves the right to stop work for protection of employees or visitors, security, or any other reason at his/her discretion.
- J. Submittals.** The contractor is responsible to submit shop drawings prior to fabrication and release of any materials for the Facility Manager and COR Review and approval. The review, however, does not relieve the contractor of responsibility to engineer the work to provide a complete working system.
- K. Excavation and Utilities.** The contractor is responsible to locate all existing utility lines prior to any excavation. Prior to disconnecting any existing utility services, the contractor is responsible to provide 48-hour advance notice to the COR so an outage can be mutually scheduled.
- L. Closeout.** Prior to final acceptance, the contractor is to submit to the COR marked up drawings (As-Built) reflecting the work as constructed. The drawings shall be digitally submitted on a CD-ROM in both AutoCAD and PDF format and provide one hard copy size A3.
- M. Housekeeping.** The contractor is responsible to clean up daily before departing the Consulate Compound. At the completion of the work, the contractor shall clean any impacted areas to a condition equal to original condition. Contractor tools and equipment will be secured when not in use.

3.0 BID FORM

Renovation of Residential Building S-94 at U. S. Consulate General Erbil, Erbil, Iraq

| No | Description | Unit | Qty | Unit Price ID | Total Price ID |
|----------|--|------|-----|----------------------|----------------|
| 1 | Administration | | | | |
| A | Mobilization / Demobilization | LS | | | |
| B | Submittals – product data and shop drawings | LS | | 0 | 0 |
| | Administration | | | Sub-Total | |
| 2 | Construction Work | | | | 0 |
| A | Architectural | LS | | | |
| B | Mechanical-Plumbing | LS | | | |
| C | Electrical | LS | | | |
| E | Close-out | LS | | | |
| | | | | | 0 |
| | Construction | | | Sub-Total | |
| 3 | DBA Insurance | | | | 0 |
| A | Contractor shall cover each of its workers at the site with DBA Workers' Compensation coverage, and require its subcontractors to do the same. Contractor must furnish certificate evidencing this coverage to the COR prior to starting work. | LS | | | |
| | DBA Insurance | | | Sub-Total | |
| | Items 1 thru 3 | | | Sub-Total | |
| | | | | G and A | |
| | | | | Sub-Total | |
| | | | | Profit | |
| 4 | Basic Bid - | | | Contract Cost | |
| | | | | | |
| | | | | | |
| A | Bid - | | | Contract Cost | |

NOTE: LIST ANY ASSUMPTIONS IN COST ESTIMATE IN WRITING FOR CONSIDERATION UNDER THE BID PROPOSAL REVIEW. ALL REQUESTS FOR INFORMATION MUST BE PROVIDED IN WRITING AND SUBMITTED TO CONTRACTING OFFICER PRIOR TO PROPOSAL DEADLINE DATE AS STATED IN THE ADVERTISED ANNOUNCEMENT.

3.0 SCOPE OF WORK:

The contractor shall provide all materials, tools and equipment, labor, transportation and supervision to renovate the residential building S-94 and ensure the work is completed safely and properly.

A. GENERAL REQUIREMENTS

1. Within 3 days of Notice to Proceed (NTP), the contractor shall provide the COR a project schedule showing start to completion dates including significant milestones.
2. Within 3 days of NTP, the Contractor shall provide the COR with details of the proposed installation utilizing written description or sketches or both.
3. The contractor is responsible to properly remove and dispose of all debris related to their work, including, but not limited to electrical, mechanical, sanitary accessories, soils, rock excavation, packing materials, scrap steel, uninstalled materials and/or environmental waste.
4. The contractor is responsible to properly layout and prepare for the renovation based on locations provided by the COR, or Facility Manager, if the COR is unavailable.
5. When pursuing the work, the contractor is to take extra care not to damage existing structures. Contractor is responsible to repair any damage caused as the result of their work.
6. When pursuing the work, the contractor is to implement safety measures to protect from damaging existing structures not designated as part of scope of work. The limits of construction will be clearly identified and marked to deter unauthorized personnel access.
7. All work shall be according to attached drawings and specifications, Codes (listed below), OBO program office, OPS/SHEM requirements. If there is a conflict between codes, drawings or specifications the more stringent will apply.
8. Storage of "Useful" and uninstalled materials will be in a location as directed by the COR.
9. Contractor is responsible to field verify measurements.
10. Contractor will provide samples, catalog cut sheets, and paint colors etc. of all products prior to installation or use for COR approval.
11. At completion of work, the Contractor shall clean any impacted areas to a condition equal to original condition.
12. Contractor will warranty all construction work for a minimum of one (1) year and provide manufacturer warranties and equipment manuals for all equipment installed to the COR.
13. All construction work will be in conformance with the following Codes:
 - a. International Building Code, 2009 Edition plus the 2011 OBO International Code

Supplement.

- b. International Plumbing Code, 2009 Edition plus the 2011 OBO International Code Supplement.
- c. International Mechanical Code, 2009 Edition plus the 2011 OBO International Code Supplement.
- d. International Fire Code, 2009 Edition plus the 2011 OBO International Code Supplement.
- e. National Electric Code, 2011 Edition plus the 2011 OBO International Code Supplement.
- f. International Residential Code 2009 Edition plus the 2011 OBO International Code Supplement.
- g. National Fire Protection Association, NFPA 101 and NFPA 58
- h. ICC/ANSI A117.1-98 Accessible and Usable Buildings and Facilities
- i. NECA 90 Recommended Practice for Commissioning Building Electrical Systems (ANSI)
- j. NECA 1-2010 Standard Practice of Good Workmanship in Electrical Construction (ANSI)
- k. IEEE C2-2012 National Electrical Safety Code (NESC)
- l. EM 385-1-1 U.S. Army Corp of Engineers Safety and Health Requirements
- m. ASTM A36, A307, A490, C150, C33, C260 American Society for Testing and Materials.
- n. ACI American Concrete Institute.
- o. AASHTO M 147 American Association of State Highway and Transportation Officials.
- p. AISC American Institute of Steel Construction.

B. Work Requirements:

Contractor shall provide complete design and construction services, to include all coordination, supervision, and management necessary to meet the requirements of this contract.

The main work items are:

- 1. Complete renovation of the building structures without creating structural changes or adding new loads.
- 2. Complete renovation of electrical and sanitary utilities.

The main work items will be according to the following Bill of Quantities:

| No. | Item Description | Unit | Qty. |
|----------|---------------------------------|------|------|
| 1 | Skeleton Work | - | - |
| 1.1 | Demolition and Site Preparation | - | - |
| 1.2 | Concrete Work | - | - |
| 2 | Finishing Work | - | - |
| 2.1 | Hollow Concrete Block Work | - | - |
| 2.2 | Plastering Work | - | - |
| 2.3 | Tiling Work | - | - |
| 2.4 | Carpentry Work | - | - |
| 2.5 | Metal Work | - | - |
| 2.6 | False Ceiling Work | - | - |
| 2.7 | Painting Work | - | - |
| 2.8 | Proofing Work | - | - |
| 3 | Mechanical Work | - | - |

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| 4 | Electrical Work | - | - |
|---|-----------------|---|---|

| No. | Item Description | Unit | Qty. |
|-------|---|------|------|
| 1.1 | Demolition and Site Preparation Work | | |
| 1.1.a | <p>Partition walls, parapets and floors: Demolish and prepare site for new work:</p> <ol style="list-style-type: none"> Demolish 1.5m width of existing 0.25m thick masonry wall in living room wall at (A101) to create new access door. Dimensions of doorway opening shall be 2.2m high X 1.1m wide, edges shall be vertical and perpendicular. Demolishing work shall extend below existing lintel level. Contractor shall provide the necessary protection to the wall and slab. Demolish 1.2m width of existing 0.25m thick masonry wall in the proposed laundry room at A202 to create new access door. Dimensions of doorway opening shall be 2.2m high X 1.1m wide, edges shall be vertical and perpendicular. Demolishing work shall extend below existing lintel level. Contractor shall provide the necessary protection to the wall and slab. Demolish the non-load bearing hollow masonry partition wall in A105 & A204 at 1st & 2nd bathrooms of floors to expand the bathroom spaces; edges shall be vertical and perpendicular. Eliminate the single toilet at A017 ground floor. Work includes demolishing the non-load bearing hollow masonry partition wall. Demolish the non-load bearing hollow masonry partition wall in A102 at ground floor to expand the current kitchen area-to make A100 and A102 as a one opened space. Remove and discard the existing floor tiles of 1st & 2nd floors. Work includes correcting the floor level according to IBC standards. Demolish and discard existing metallic partition walls, ceilings, and plastic wall covers at A108 and A205. Demolish all metallic staircases, hand railings and parapets on the roof level. Remove and discard the existing sandwich panel room at the roof level. Remove and discard the existing Metal shade over the 2nd floor balcony. Demolish the existing masonry perimeter wall and foundation. Work shall include excavation of foundation 0.5m wide X 0.6m depth and laying crushed stone with good compactions. | L.S | - |
| 1.1.b | <p>Electrical, Mechanical and Sanitary, Demolition Work: Remove and discard any existing electrical, mechanical, and sanitary accessories and installations and prepare site for new work wherever required according to COR instructions. The main work includes:</p> <ol style="list-style-type: none"> Removal and discarding of all electrical installations, fixtures, wires, cables, panels and conduits, etc. | L.S | - |

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| | <ul style="list-style-type: none"> 2. Removal and discarding of all sewer lines (under and above ground), manholes, fittings, water pipes, sinks, lavatories, showers, water taps, water tanks and any other sanitary installations and fixtures, etc. 3. Removal and discarding water heaters, AC/Split units, ceiling fans, water tanks, sunshades, etc. 4. Removal and discarding all TSS and Telecom pipes, channels, conduits, boxes, wires and cables or any other materials, and installations as designated during the site visit. | | |
| 1.1.c | Doors, windows, window grills and railing: Remove and discard all existing wooden and metallic doors, frames, windows, grills, and railings to prepare the site for the new work. | L.S | - |
| 1.1.d | Remove all old plaster, wall and floor tiles: Remove all old plaster from the surface of all interior walls and ceilings and all exterior walls, perimeter wall along the street, exterior and interior concrete stairs, and exterior roof to at least 300mm clear of all signs of dampness or salt damage from the surfaces. The removal work includes rock cover, kitchen wall tiles, cement and gypsum plastering. Brush the walls to remove all plaster residue, particularly around angle beads. | L.S | - |

1.2. Concrete Work

| No. | Item Description | Unit | Qty. |
|-------|--|------|------|
| 1.2 | <p>Concrete Work: All procedures and materials under this section, where not specifically stated, shall be in accordance with standards and recommendations of the American Concrete Institute's Building Code Requirements for reinforced concrete (ACI 318 - latest edition), IBC, OBO program office and OPS/SHEM requirements.</p> <p>Materials: a) Cement: Portland cement shall conform to "Standard Specifications for Portland Cement" (ASTM C150 - latest edition) and shall be Type I, IA, III or IIIA. b) Aggregates: Concrete aggregates shall conform to "Standard Specifications for Concrete Aggregates" (ASTM C33 - latest edition). Maximum coarse aggregate size for all members less than eight (8) inches in thickness shall be 3/4 inch. For members with thicknesses greater than or equal to eight (8) inches, the maximum coarse aggregate size shall be 1-1/2 inches. c) Mixing Water: All water used in concrete shall be from a potable water supply. d) Admixtures: Air-entraining admixtures shall conform to "Standard Specifications for Air-Entrained Admixtures for Concrete" (ASTM C260 - latest edition). e) Concrete Mix Proportions Section 4.3.1. (ACI-318) shall be used for developing mixture portions. The contractor shall furnish, for the COR's approval, all records to show that his concrete supplier is in compliance with all provisions of Section 4.3.1. If the concrete supplier is unable to furnish all records to comply with Section 4.3.1, Sections 4.3.1.2 and 4.3.2.2 can be used. If no records are available for any of the above ACI Sections, Section 4.3.3.2 shall be used to develop a concrete mix design. f) Steel Reinforcement, the standard mesh for concrete reinforcement should be compliance with ASTM Standards deformed steel for concrete. g) A concrete vapor barrier sheet of polyethylene plastic (Visqueen) should be placed directly on top of the compacted crushed stone before the concrete foundation is poured to help keep moisture from the soil from passing up through the concrete.</p> | | |
| 1.2.a | <p>Concrete Layer Under Interior and Exterior Floor Tiles: Demolish unlevelled concrete floors and make them according to standard elevations. Cast 5-10cm plain concrete layer 1:3:6 under all floor tiles using Portland cement salt resistant type. The concrete layer will be placed</p> | L.S | - |

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| | above 10cm of compacted crushed stone, with a nylon filament or rubber 2 mm thick. | | |
| 1.2.b | Casting Foundation of Perimeter wall: Demolish the existing perimeter wall foundation. Provide materials and pouring of plain concrete, C25 dimension 0.5m width X 0.4m thickness. Work includes laying 2mm thick of nylon layer under the concrete foundation. | M3 | 5 |

2.0 Finishing & Building Work

| No. | Item Description | Unit | Qty. |
|-------|--|------|------|
| 2.1 | Hollow Concrete Block Partition Work All work in this item shall be of concrete blocks that conform to codes. Rates of block work include: Vertical and horizontal joints, cement and sand mortar, galvanized angles, and butterfly ties (at joints and between walls in cavity walls). Concrete filling at all ends including reinforcing steel to cavities at quoins and door and window openings, reveals, sills for windows and the like. Door walls and jambs for doors and others as per item description and original BOQ detailed drawings; lintels and bond beams to the full length of the wall, min 20cm wide x 40cm high and the same wall thickness as the reinforced concrete with due reinforcement steel on top of doors and windows or as specified in drawings. Cost shall include concrete projections for windows as required, and all materials and labor needed to complete. | Note | - |
| 2.1.a | Interior Partition Reconstruction Work - Non-load bearing hollow masonry partition wall at interior bathrooms (A105&A204), and closing of one window and door opening at A201. Provide materials and build with hollow concrete blocks 40cm x 20cm x 20cm and cement and sand mortar. The work includes joining by anchorage dowel with RC elements. Cut existing tiles under the walls and apply proper grout material to fill the space between the blocks and the cut tiles. The internal and external partitions will be installed at the locations as specified in drawings. | M3 | 4 |
| | Perimeter Wall Reconstruction Work: Provide materials and re-build the premiere wall with hollow concrete blocks 40cm x 20cm x 20cm and cement and sand mortar. Perimeter wall height shall be 1.6m from floor level. The work includes construction of support columns and expansion joints every 2.5m. The perimeter wall will be installed at the locations as specified in drawings. | M3 | 10 |

2.2 Plastering Work

| No. | Item Description | Unit | Qty. |
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| 2.2 | <p>Plastering Works The work shall be required for: 1. The surfaces of all interior and exterior walls and building fronts. 2. All interior ceilings. 3. All exterior walls. 4. Perimeter wall. 5. Exterior and interior stairs. 6. Exterior and interior staircase. 7. Balcony railings and exterior roof and perimeter wall. 8. Parapets.</p> <p>The work shall include all narrow widths, removal of joints on block and brick walls, frames surrounding pipes and other fittings, jambs and reveals of openings, sides of columns, and windowsills - all of which shall be considered as plastering. Provide heavy gauge expanded metal angle pieces at all corners for the entire height of surface. Work cost shall also consider all labor, curing, erecting and dismantling of scaffoldings, additives, pigments and all incidentals required.</p> <p>Where plaster surfaces are involved, patch damaged or deteriorated plaster areas. Cracks, holes, bulges or gouges in wall and ceiling surfaces shall be spackled and sanded smooth. Loose, peeling, blistering, chalking and scaling paint shall be removed to the refusal point by scraping. Resulting edges of all areas scraped shall be spackled to a feathered edge and sanded smooth when dry. All spackled, plastered and sanded areas shall be spot-primed prior to painting. Holes in plastered bathroom areas must be finished with hard finish Portland cement consisting of one part dry hydrated lime by weight to two parts of Portland cement.</p> | Note | |
| 2.2.a | <p>Gypsum Plastering: Internal gypsum plaster shall be 2-6cm thick and shall be applied to the following surfaces: 1. Plaster all interior walls. 2. Plaster all interior ceilings including drop beams. 3. Repair any holes or poor joints with sand and cement (1:3). 4. Apply one coat of weak cement rendering on the wall surfaces before starting the gypsum plastering.</p> | L.S | - |
| 2.2.b | <p>Cement plastering: Plaster using cement and sand plastering 1:3 mix percentage shall be applied to the following surfaces: 1. All building exterior fronts. 2. Parapets and perimeter fence. 3. Wire brush the surface using a suitable detergent and apply it prior to the application of the prime coat. 4. Apply one coat of weak cement rendering on the wall surfaces before</p> | L.S | - |

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| | starting the main cement plastering layers. | | |
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2.3. Painting Work

| No. | Item Description | Unit | Qty. |
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| 2.3 | <p>Painting Work</p> <p>The work shall be required for:</p> <ol style="list-style-type: none"> 1. All interior walls and ceilings. 2. All exterior walls. 3. Surfaces of exterior and interior stairs. 4. Surfaces of exterior steel. 5. Surfaces of balcony rails. 6. Surfaces of exterior roof and perimeter wall. <p>All surfaces specified to be painted shall be clean, dry and free of all dirt, grit, grease, mold, mildew, foreign substances and all loose, peeling, blistering, chalking or scaling paint. Color will be specified by the COR. Paint shall be supplied to site in sealed container. Paint must meet IBC standards, be low VOC and be approved for use, by the COR, prior to application. Site mixing shall not be permitted.</p> <p>The contractor rates shall include the supply of all materials, workmanship, samples, primers, surface preparation and protection of painted surfaces. Any damages done while carrying out painting shall be repaired at the contractors expense.</p> | Note | - |
| 2.3.a | Ensure all surfaces are properly prepared to accept paint and seal wall and ceiling penetrations with waterproof sealant. Supply and paint high quality emulsion paint to the interior and exterior surfaces. Provide catalog or sample for COR approval prior starting the work. Apply one primer coat and three finish coats to ensure complete coverage and no bleed through. | L.S | - |
| 2.3.b | Semi-gloss enamel paint is required for steel members and structures. | L.S | - |

2.4. Tiling Work

| No. | Item Description | Unit | Qty. |
|-------|--|------|------|
| 2.4 | Rate shall include labor for preparation of surfaces under wall tiles to include one coat plaster finish to falls and cross falls, tile surface finishing, pointing, cleaning, as well as special tile pieces for edges, plastic spacers, and all incidentals. Tiles to be free from all defects and approved by the COR before application. Final surfaces must be flat and have perpendicular angles. | Note | - |
| 2.4.a | <p>Wall Tiles for Kitchen, Laundry Room and Bathroom Walls:</p> <p>After removing existing tiles prepare the existing wall surfaces for new tiling. Supply and install ceramic wall tiles, Italian made or equivalent. Price to include round aluminum edges for all corners. Edges shall be perpendicular and wall surfaces shall be level. Provide sample for COR approval prior to installation.</p> | L.S | - |

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| 2.4.b | Ceramic Tile Interior Flooring: Supply and install non-slip ceramic floor tiles (Italian made or equivalent) in all hallways, kitchen, bathrooms, and laundry area. Make new floors flush/level with existing flooring and correct the final flooring elevation to meet the requirements of existing ceiling and doors heights. | L.S | - |
| 2.4.c | Wall Skirting: Supply and install wall skirting using the same floor tile material 15-10cm in height, in all rooms and internal walkways in which tile flooring is installed. Provide catalog or sample for COR approval prior starting the work. | L.S | - |
| 2.4.d | Marble Work for Interior Staircase: Remove the existing tiles from the interior staircase and furnish and replace with marble. Treads must be 3cm thick and risers 2cm thick. Price shall include supplying and installing marble for stair flight skirting in parallel setting to the nosing line at an average height of 12cm and 20mm thickness, with 15cm wide coping for nosing, and local marble water stop (5cm wide x 3cm thick x length as wide as the tread of the stair minus riser thickness) fixed at the end of treads. Tile must be approved by the COR prior to installation. Fill under tiles with cement and sand 1:6 ratio, bedding in cement mortar, grouting, pointing, polishing of face and all related works. The remaining stair surfaces must be finished according to finishing works specified for internal and external buildings. Correct the final elevation of stair flooring to meet the requirements of existing ceiling and doors. Note: The checking for each stair will be from the adjacent wall to the external edge of the water stop of that stair. | L.S | - |
| 2.4.e | Ceramic Tile for Exterior Stairs: Remove the existing tiles from the exterior staircase and furnish and replace with anti-slip ceramic tiles. Price shall include supplying and installing ceramic tiles for stair flight skirting in parallel setting to the nosing line at an average height of 12cm and 20mm thickness with 15cm wide coping for nosing, and ceramic tile water stop (5cm wide x 3cm thick x length as wide as the tread of the stair minus riser thickness) fixed at the end of treads. Fill under tiles with cement and sand 1:6 ratio, bedding in cement mortar, grouting, pointing, polishing of face and all related works. The remaining stair surfaces must be finished according to finishing works specified for internal and external building. Tile must be approved by the COR prior to installation. Correct the final stair elevations to meet the requirements of existing ceiling and door heights. Note: The checking for each stair will be from the adjacent wall to the external edge of the water stop of that stair. | L.S | - |
| 2.4.f | Ceramic Tile for Exterior Walkways: Remove existing tiles within corridors and walkways and prepare surface for new tiling. Provide and lay non-slip ceramic floor tiles 300mm x 300mm (thickness to be specified by the manufacturer) appropriate for heavy traffic use in exterior walkways in front, side, and back yards and balcony. Tile must be approved by the COR prior to installation. Lay tiles on a 20mm thick cement mortar 1:4 (1 part cement to 4 parts sand). Point the joints with white cement and matching pigment. The work includes giving the required elevations, slopes and making the expansion joints at 3m x 3m using fiberglass or rubber joints at the edge of walls. Correct final walkway floor | L.S | - |

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| | elevation to meet the requirements of existing doors, walls and ceiling heights, with slopes as required. | | |
| 2.4.g | Water Proofing Roof and Bathrooms: Waterproofing and roof sheeting shall include surface preparation after removal of tiles which should include; cutting in edges, priming and treatment at the corners and drains, dressing over parapets, stub columns, and side and end laps. It shall also include the forming of grooves to receive edge of plasticized bitumen membrane and sealing with elastic sealer. Work required before roof tile installation includes cleaning of roof slab and removal of all dirt and dust material from the surfaces, cracks, and holes. Repair of damage to the concrete slab must be treated and filled with cement and sand mortar 1:4 or complete concrete mix if required. Supply and apply two coats of acrylic waterproofing compound plastic in accordance with manufacturer's instructions, to cover roof slab. Same to be used for the bathrooms. | L.S | - |
| 2.4.h | Ceramic Tiles for Roofs: Remove existing tiles on roof surface and prepare the roof surface for new tiles after applying waterproofing. Provide and lay non-slip ceramic floor tiles 300mm x 300mm (thickness to be specified by the manufacturer) appropriate for heavy traffic use. Tile must be approved by the COR prior to installation. Lay tiles on a 20mm thick cement mortar 1:4 (1 part cement to 4 parts sand). Point the joints with white cement and matching pigment. The work includes giving the required elevations, slopes and making the expansion joints at 3m x 3m using fiberglass or rubber joints at edge of walls. Correct final roof flooring elevation to meet the requirements of existing doors, walls, and parapets heights, with slopes as required. | L.S | - |

2.5. Carpentry Work:

| No. | Item Description | Unit | Qty. |
|-------|--|------|------|
| 2.5 | <p>Sizes of carpentry work given in the Bill of Quantities are finished sizes. All existing door openings must be adjusted to be suitable with the standard size of door openings required. The contractor will be responsible for demolishing, rebuilding and any other work required to increase the height and width of the opening to match the standard opening.</p> <p>Sizes of doors and other items mentioned in the Bill of Quantities shall allow for tolerance to suit the structural openings.</p> <p>Rates for carpentry and joinery work shall include:</p> <ul style="list-style-type: none"> a) Shop and coordinated drawings. b) Frames, architrave, and other holders and 20cm high "U" shape kick plates or it should be compatible with the other door components and sizes. c) Allowance for plastering and tiling and the like. d) Cutting and fitting around obstructions, bedding and painting. e) Grounds, blocking and backings. f) Plugging concrete, block work. g) Best type of stainless steel door handles, cylinders, cylindrical locks with master key for all the doors, doorstops, screws, temporary fixing, re-fixing, oiling and adjusting. h) Providing three keys for each lock including tagging. i) Providing and fixing wall mounted wooden key cabinets, (70cm x 70cm x 10cm), varnish finished with all related works including cylindrical lock. j) Preparing surfaces to receive finishes. | Note | - |
| 2.5.a | <p>Demolish and rebuild the hollow block masonry walls to meet the requirements of ceilings and standard door height and width if required.</p> <p>Supply and install solid core wood doors 4.5cm thick single or double sash. Turkish made or equivalent with frame 4.5cm x 3.5cm with hard wood edging. Paint with 2 base coats and 2 finishing non-glossy lacquer coats if required according to manufacture instructions. Install temporary frame (sub frame) prior to blocking wall and plastering. Final spray-painted door and frame to be installed over the temporary frame after the wall finishing paint works are completed. Frames to be of hardwood (Swedish or Turkish) with width to match the wall thickness and allowance of 4 - 6cm for plastering and tiling purposes. They are to be immersed in wood preservative before installation then embedded completely in sand/cement mortar and completely anchored. Install aluminum 10cm high and 2mm thick kick plates for bathroom doors, "U" shaped both sides, and gaskets. Provide catalog or sample for COR approval.</p> | No. | 6 |
| 2.5.b | <p>Supply and install kitchen cabinets, including a marble countertop, a stainless steel sink suitable for kitchen use, and faucet. COR must approve all materials prior to installation. Exact dimensions shall be calculated during the vendors site visit.</p> | L.S | 1 |

2.6. Metal Work

| No. | Item Description | Unit | Qty. |
|-------|---|------|------|
| 2.6 | The rates for metalwork shall include preparing shop drawings, drilling, counter sinking, screwing, bolting, welding and riveting, as well as providing lugs, plugs, holdfasts, gaskets, sashes, double weather strips and external and internal silicon filling for frames. Three keys shall be provided for each lock and padlock including tagging and a master key for all doors. Door hardware including closers, viewers, dowels, etc. shall also be considered. Also include surface preparation and all other accessories and incidentals required to execute the work. Work shall be according to below: | Note | - |
| 2.6.a | Aluminum Windows: Remove existing old windows and supply and install new hinged aluminum windows. All new aluminum windows must be watertight with integral reinforcement stiffeners. Provide sample for COR approval prior to installation. All windows must include all required hardware. Casement window shall have inward swing with a minimum clear opening dimension of 12 inches (300mm) wide and 24 inches (600mm) tall. Glass shall be minimum 6mm double insulated glazing and have a bronze reflective glass tint to reduce sunlight heat gain. 6mm Mylar film shall be installed on each window per manufacturer instructions. Mylar film is GFE. Fly screens shall also be provided for each opening window section. Provide samples and design for COR approval prior to installation. Contractor to field verify measurements. The contractor is responsible to demolish the walls to meet the requirements of the window height and width. | L.S | 1 |
| 2.6.b | Aluminum Doors for Bathrooms (2m x 1m): Supply and install aluminum door (with approved color) with opaque tempered glass. Door must include and latch mechanism for easy latching from inside and door handles on both sides. The door must be based and fixed on a heavy-duty steel frame. The frame must be installed within the proposed partition wall. Provide catalog or sample to COR for approval prior to installation. | No. | 2 |
| 2.6.c | Staircase Railing: Provide all materials and resources to remove and discard the existing steel railing. Supply and install an iron railing for the staircase. Work includes supplying materials, fabricating, and installing a hand railing to meet the following safety standards: top of railing must be 36-38" (91-97cm) from floor or step level. Sturdy railing supports (balusters) shall have no gaps or openings larger than 4" (10cm) and the bottom of railing assembly must be no more than 4" (10cm) from the floor. Paint with one coat of two component epoxy primer and then 2 coats enamel paint with approved color. | L.S | 1 |

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| 2.6.d | Security Access Doors: Supply and install new access exterior doors. New doors shall meet the security and specifications listed below. Provide catalog or sample for COR approval prior to installation. Demolish and rebuild the walls to meet the requirements of door heights and widths. Work includes removal and discarding of all existing exterior and interior steel doors. Supply and install new metal doors with clear dimensions of 2.1m x 1m with one 6mm metal sheet on each side. The door is to swing outward for exterior doors and inward for internal doors. Hinges must be made non-removable. Exterior doors will not have glass. The doors should be a minimum 400mm thick. Doorframe color should match new door color. Doors and frames shall be painted with hammer paint. Paint doors and frames prior to lock installation, touch up paint as needed after lock installation. The locks (2 locks) should be sliding bolt locks, mounted at the middle part below or above the door handle, and lower part of the frame. The frame of the door should be substantial and secured with screws penetrating 6 inches with spacing of 30cm. Between the 6mm metal sheets of each door, install 4 inch by 5cm horizontal supports every 25cm. Fill the void between the horizontal supports with insulating material to reduce heat gain. Patch and paint the opening before installing the new door and frame. Provide and install a high quality automatic hydraulic door closer for each exterior door. Door closer must carry the weight of the door. Provide and install combination lock (KABA L1000). Provide samples for COR approval prior to installation or painting. | No. | 4 |
| 2.6.e | Increasing Existing Masonry Parapet Height: Supply and install iron railing above the existing masonry parapets on the rooftop to increase existing masonry parapet height (up to 50cm) to meet the safety standards. Prepare for paint and paint railing with a primer coat and three coats of enamel paint. | L.S | 1 |
| 2.6.h | Steel Railings: Remove existing railing at the balcony and wherever required. Supply materials to fabricate and install new railing to meet safety standards. Top of railing must be on less than 42" (107cm) from floor level. Sturdy railing supports (balusters) shall have no gaps or openings larger than 4" (10cm) and the bottom of railing assembly no more than 4" (10cm) from the floor. Paint with one coat of two component epoxy primer and then 2 coats of enamel paint with approved color. | L.S | 1 |
| 2.6.i | Window Grills: Supply and install steel window grills over all new and existing windows on the second floor. Grills and interior partitions will be made from heavy-duty mild steel frame. Provide egress opening with door per each bedroom (one window). The egress opening net dimension must comply with SDEM requirements. Attach grills to with steel angle ties and plates, painting with one coat of primer undercoat and at least two coats of hammer paint. Window grills and egress dimensions must be: <ul style="list-style-type: none"> • Operable from the inside. • Minimum opening: 5.7 ft.² (0.529m²). • Minimum dimension: 24 inches (61cm) x 20 inches (51cm) and not be | L.S | 1 |

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| | <p>more than 44 inches (112cm) from the floor.</p> <ul style="list-style-type: none"> Bars or grilles must have inside release mechanism. | | |
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2.7 False Ceiling Work

| No. | Item Description | Unit | Qty. |
|-------|--|------|------|
| | Gypsum board ceilings, and acoustic tiles ceilings and the like shall be measured net in square meters. The contractor rates shall include supplying all materials, workmanship, samples, primers, surface preparation, protection of surfaces, application to all heights as required of works, repair of all damaged surface at the contractor's expenses, and all other requirements. | | |
| 2.7.a | Supply and install waterproof ceiling tiles in launder area, bathrooms and kitchen using L and Z section frames and heavy duty U.S. or equivalent T sections and U.S. or equivalent hangers. Tiles shall be perforated metal (stainless steel color) with black insulation backing. | L.S | 1 |

3.0 Mechanical and Sanitary Work

| No. | Item Description | Unit | Qty. |
|-------|--|------|------|
| 3.1 | <p>Each item below includes all sanitary and mechanical infrastructure work such as:</p> <p>A. Provide COR with samples for approval prior to installation.</p> <p>B. Water Piping - Supply and install hot and cold water piping to all bathrooms, kitchens and laundry rooms. Supply and install piping to the new water storage tanks.</p> <p>C. Supply and install galvanized steel pipes with all necessary fittings like elbows, vents, etc., to complete the connection process.</p> <p>D. Main Sanitary Fixtures and Pipes - Internal sanitary sewer network shall be included in the rates of sanitary fixtures and appliances to nearest riser or manhole. The price includes the UPVC connection pipes between sanitary fixtures and the main pipe and the pipe connection between sanitary fixtures and cold and hot water collectors. Supply all materials and connect the sanitary units to the utility system.</p> <p>E. Excavate as needed and install new water pipes and drain for kitchen sink. Replace existing manholes with UPVC-T sewage adapters, 4-6 inches in diameter.</p> <p>F. Insulate all exposed water pipes and water tanks.</p> <p>G. Cleanouts will be required according to the building requirements with all the related pipes, fittings and infrastructure works.</p> | Note | - |
| 3.1.1 | <p>Plumbing:</p> <p>A. Un-plasticized polyvinyl chloride (UPVC) pipes shall be used in the plumbing installation and they must conform in every respect to the requirements of The International Plumbing Code (IPC).</p> <p>B. All fittings and pipe specials used in the plumbing installation shall be</p> | Note | - |

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| | <p>suitable and compatible with all respects to the pipeline to which fittings and specials are fixed.</p> <p>C. All sanitary fittings and fixtures shall be American Standard or approved equivalent.</p> | | |
| 3.1.2 | <p>Rates for plumbing work shall include:</p> <p>A. Compliance with the relevant International Plumbing Code (IPC) standards as given under the specifications.</p> <p>B. Cutting of waste of pipes etc., and joining pipes.</p> <p>C. All specials such as elbows, bends, tees, junctions, plugs, reducers and similar pipefittings and valves will be including the work items.</p> <p>D. Connecting pipes to sanitary fixtures and appliances.</p> <p>E. Casing to brick walls and returning to original condition areas that were disturbed.</p> <p>F. Necessary hardware and pipe supporting components.</p> <p>G. Connecting of different types of pipes.</p> <p>H. Testing and disinfection after completion.</p> <p>I. Excavation in all floor types, backfilling, disposal of surplus soil for items which were specifically mentioned.</p> <p>J. Supply and install of sewer and storm water UPVC pipes for underground and suspended drainage network, with all required fittings, excavation, casting 4000 psi concrete, backfilling and all other requirements to finishing the work. Pipe sizes required include: Diameter 2 inch Diameter 3 inch Diameter 4 inch Diameter 6 inch.</p> | Note | - |
| 3.1.3 | <p>Rates for sanitary fittings shall include:</p> <p>A. Fittings such as taps, waste water outlets, internal overflow and supporting brackets, and incidental materials for installation.</p> <p>B. Assembling component parts, and joining pipes including necessary couplings. Ensure system is in proper working order when completed.</p> <p>C. Joining and connecting of pipes to sanitary fittings.</p> <p>D. Testing and commissioning of the installation.</p> | Note | - |
| 3.1.4 | <p>Rates for drainage work shall include:</p> <p>A. Lay pipes to falls.</p> <p>B. Excavation and backfilling.</p> <p>C. All pipe specials such as bends, junctions, elbows, tees etc.</p> <p>D. Connection to sides of manholes etc.</p> <p>E. Providing sleeves etc., when pipes pass through walls, foundations etc.</p> <p>F. Giving notices, obtaining permits, paying fees, fixing, testing and commissioning.</p> <p>G. Casting concrete or retiling.</p> <p>H. Any required manholes, additional septic tanks, cleanout, drainage points, etc.</p> <p>I. Connecting to the existing cesspool, septic tanks and existing municipality system with all related works.</p> <p>J. Separate gray water line from the black water line at fixture. Black water line should be connected to the existing cesspool. Gray water line</p> | Note | - |

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| | should be connected to the city sewer line located in front of S-64 and S-66, next to the existing T-walls. Contractor shall protect the under and above ground utilities and any damage to structures should be repaired. | | |
| 3.2 | Bathroom Fixtures: Materials shall be Vitra or equivalent. Provide samples or catalog for COR approval prior to installation. Supply and install: <ul style="list-style-type: none"> - Bathroom Sink - New toilet (western type). - New spray hose. - New shower cabinet with tempered glass according to the design. - Toilet paper holder. - Shampoo holder. - Shelves in shower space. - Mirror above the sink. - Mirror shelves. - Soap holder. - Towel bars (for sink and shower space). - Toothbrush holder. - Sink faucet. - Safety bar in shower space. | No. | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| 3.3 | Exterior Gray and Black Water Drain Lines: Provide materials and equipment required to excavate in different floor types such as concrete, asphalt and floor tiles and to relocate any obstacles necessary in order to connect the bathrooms and kitchen with the existing sewer drainage resources. Reinstall floors after the work completion according to the previous condition or according to the proposed renovation plan. Work includes providing and installing UPVC pipes 6" diameter. Separate the gray water line from the black water line. The black water line should be connected to the existing cesspool and gray water line should be connected to the city sewer line located in front of S-64 and S-66, next to the existing T-walls. Contractor should make sure to shift or remove any obstacles and protect the under and above ground utilities. Any damage to structures should be repaired. | L.S | 1 |
| 3.4 | Interior Gray and Black Water Drain lines: Provide materials and equipment required to excavate in different floor types such as concrete, asphalt and floor tiles and to relocate any obstacles necessary in order to connect the bathrooms, laundry room, and kitchen floor drains and surface water with the new sewer drainage line. Reinstall floors after the work completion according to the previous condition or according to the proposed renovation plan. Work includes providing and installing UPVC pipes diameter 6", 4", 3", and 2.5" as required. Separate interior gray water branches from the interior black water branches. Interior black water branches should be connected to new exterior black water lines that are connected with the existing cesspool, and interior gray water branches should be connected to the new exterior gray water line that will be connected with the existing city gray water network. | L.S | 1 |

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| 3.5 | Provide and install in all bathrooms, laundry area and kitchen a 25cm exhaust fan with louvers in the wall with switch located next to the light switch. Cut wall for installation if needed. | No. | 4 |
| 3.6 | Install stainless steel drain point with cover and vapor barrier gooseneck design for all floor drains. | No. | 8 |
| 3.7 | Provide and install new water pipes and drain for each sink, toilet and shower. Gray water line should be connected to the main gray water line and black water lines shall be connected to the main black water line. Work includes providing proper slopes. | L.S | - |
| 3.8 | Floor Trap: Supply and install 4-inch floor traps with cover from heavy cast brass ferrule with countersunk head screw and/or cast brass cover in all bathrooms and kitchens. Cost shall also include all drainage piping up to main pipe or manhole. | L.S | - |
| 3.9 | Provide new drain line and ventilation for washers and dryers (the number will be indicated to the contractor during the work). Use UPVC pipes with 3-inch dia. All new drainage pipes shall be installed underground. Contractor is responsible to provide new manhole, if needed. | L.S | - |
| 3.10 | Install 3-inch floor drains wherever required. | L.S | - |
| 3.11 | Install 4 inch clean out. | L.S | - |
| 3.12 | Provide and install P-traps on all drains to include, sinks, showers, floor drains...etc. Toilets are not included. | L.S | - |
| 3.13 | Gas Tank for Kitchen Stove: A. Provide and install steel pipe for gas connection from source to flexible tubing (per safety code) between stove and steel pipe in kitchen. Gas storage cylinder shall be located outside. B. Provide and install new hoses on all propane tanks with metal tubing or metal wrapped hoses and install cut off valves both at the appliance and outside at the tank. (NFPA 10). C. Supply and install steel enclosure for the tank according to the attached drawing. | L.S | - |
| 3.14 | Water Supply: Provide materials and equipment required to excavate in different floor types such as concrete, asphalt and floor tiles and to relocate any obstacles. Supply hot and cold water to the bathrooms, kitchens, laundry area and any other location according to the attached drawing. Pipe types shall be PPR or G.I and 0.5", 0.75", 1" and 1.25" diameter. Exposed pipes shall be insulated. Water supply system should connected the water tanks with the existing potable water sources and distribute water to the building facilities. | L.S | - |
| 3.15 | Water Pump: A. Provide and install a new domestic water pressure pump system, including check and isolation valves at city connection. Pump shall be 3/4 hp and capable of providing appropriate water pressure to fill two (2) rooftop tanks, each tank size is 2000 liters. Provide/replace piping as needed. Provide warranty and service period for the installed equipment. B. Provide and install all level controls, limit switches, pressure pumps and pneumatic tanks at rooftop water tank required to provide pressure to the | L.S | 1 |

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| | building. Recommended pressure is 2.75 – 3.45 bars. | | |
| 3.16 | Water Heater: Provide and install one new electric water heater to serve the building (200-liter capacity). Remove and discard of existing EWH's. Provide combination temperature pressure relief valve (TPRV) on the water heater. Install a drain pipe on TPRV to direct discharge to floor and make sure the TPRV drain piping is not reduced or threaded at the end and has no uphill runs. | No. | 1 |
| 3.17 | Water Tanks: Supply and install two plastic water tanks size 2000 liters each (identical with FDA specifications). Cover the tanks with 2 insulation layers. Supply all materials to fabricate and install a new canopy above the existing water tanks. Canopy dimensions shall be 2m wide x 2.7m high x 6m long). COR's approval is required on the design, work plan and materials before starting work. | No. | 2 |
| 3.18 | Concrete Manholes and Cleanouts: Remove existing manholes and supply and install new precast concrete manholes with dimensions of 40cm X 40cm. Cost to include excavation, reinforced concrete for base, back filling, cement plaster, medium duty cast iron cover, and all necessary labor for installation. | L.S | 1 |
| 3.19 | Existing Septic Tank(s) and Cesspool(s): Refurbish septic system as follows: A. Clean, inspect and repair existing septic tank(s). B. Empty, clean, inspect and repair existing cesspool(s). C. Install vertical 4-inch ductile iron gas vent with gooseneck top and stainless steel screen on existing septic tank(s), if needed. D. Clean and inspect all existing sewer drainpipes. Ensure that all sewer pipes have a 1% minimum grade - includes interior and exterior sewer drainpipe. E. Install cleanouts/manholes with cast iron covers at all sewer drainpipe changes in direction, changes in grade, or tees. | L.S | - |
| 3.18 | Roof Drains. Provide and install new rainwater drainpipes from both roofs and balconies. Install stainless steel inlet screens with minimum 100mm vertical screened height to prevent ponding. Downspouts shall be minimum 100mm diameter with all required digging, plastering, fittings and vent caps. Install concrete splash pad at downspout discharge. Downspouts shall have a 45-degree bends at bottom to direct water away from the building. | L.S | - |
| 3.19 | Air Conditioning: Provide and install (6) new 24,000 Btu split-system direct-expansion heat pump units, one in each of the 6 rooms. Remove and dispose of existing equipment. New equipment, including condenser units, shall be installed at locations to match existing. Provide or repair electric service and condensate drains as necessary. Penetrate wall for new tubing and electric service - do not run cable or tubing through windows. Seal wall penetrations so they are watertight after installations. Terminate all condensate drain lines at grade or nearest drain. Set new condenser units | No. | 6 |

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| | on pads or on existing pavement. Do not set condenser units directly on the earth or any roof surface. Provide new pads as necessary. Damage and penetrations of the roof shall be sealed and flashed watertight. At the completion of the work, provide equipment warranties to the COR. The work includes supply and installation of new outdoor disconnection means with suitable capacity for each unit. | | |
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4.0 Electrical Work

| No. | Item Description | Unit | Qty. |
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| | <p>A. Unless otherwise stated, rates in Bill of Quantities shall include all necessary materials (cables, conduits, PVC sunk box, bulbs, switches etc.) and labor required to complete the electrical installation.</p> <p>B. Except where specifically stated, all costs associated with the provision of all holes, openings, chases, ducts and other builders' work required for installation, shall be included in the rates.</p> <p>C. Testing and commissioning of the electrical installation is to be carried out by the contractor and cost of such testing and reports to be included in the rates unless otherwise mentioned separately. The testing must be performed before turning on the system.</p> <p>D. All types of fittings, materials, painting and finishes shall be approved by the COR prior to installation.</p> <p>E. Necessary trench or pit excavation, backfilling and disposal of surplus excavated materials will be required from the contractor within each unit price.</p> <p>F. Preparation of all required workshop drawing and as-built drawings as specified.</p> <p>G. Protection of all electrical works.</p> <p>H. GFCI receptacles: Outlets designated GFCI protection shall be fed from a GFCI circuit breaker.</p> <p>I. GFCI breaker, rated for 10mA or less ground fault trip. 50Hz, 240V (line to ground) shall be installed in an enclosure adjacent to the first receptacles in the branch circuit.</p> <p>J. The breaker will provide ground fault protection for all receptacles in the circuit. Receptacle circuits in all wet areas are to be protected by the GFCI circuit breakers (kitchen, bathroom, outdoors).</p> <p>K. All circuits inside the house shall be in EMT conduit or similar. Local standard receptacles may be rated 240v, 13A or 16A.</p> <p>L. Preform Lockout-Tagout procedures during the work.</p> <p>M. All the exterior wiring and cables shall be installed in metal conduit or raceway.</p> <p>N. All the interior wiring and cables shall be installed in conduit or raceway.</p> | Note | |
| 4.1 | <p>Wiring:</p> <p>The wiring shall be THHN/THWN insulated, 600V rated and equal to NEC #12. Remove and dispose of all replaced wiring. All wiring and cabling shall be installed in Panduit or raceway inside the building. Work shall be according to below:</p> | Note | - |

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| 4.1.1 | Interior and Exterior Distribution Wiring System: Supply, connect and commission power points as indicated to equipment using conduits, cables, wires and connecting switches terminated to relevant panel board. All the exterior wiring and cables shall pass through metallic conduit. Interior wiring shall pass through plastic or PVC conduits. Provide and install new copper wiring throughout the building. The wiring shall be THHN/THWN insulated, 600V rated equal to NEC #12. Remove and dispose of all replaced wiring. All wiring and cabling shall be installed in Panduit or raceway inside the building. | L.S | 1 |
| 4.1.2 | Install 20cm closed cable duct at roof top using 2mm thick galvanized steel with holders. | L.S | 1 |
| 4.1.3 | Install 2 x 35mm ² insulated earth cable for ring earth ground including CU bus bar 30mm x 3mm x 0.4mm in each floor with insulated CU conductor 16 mm ² routed to each floor distribution panel. | L.S | 1 |
| 4.1.4 | Connect service from MOE grid to new service panel; the cable size will be according NEC. | L.S | 1 |
| 4.2 | Panel Boards: Supply, install, test and commission complete new panel board with main and branch circuit breakers and all necessary accessories to complete the work. The panel board and MDB lines must be designed to carry the consumption loads individually. The distribution lines from the MCB must be designed and allocated as noted. Work shall be according to below: | | |
| 4.2.1 | Provide and install a new Main Circuit Breaker Panel rated at 63A, 230/400V (3 Phase, 4 wire, plus ground) with a main circuit breaker and 24 single pole circuit breaker positions. Panel Board Schedule for circuit breaker sizes will be indicated to the contractor during the work. Panel Board ampere interrupting capacity (AIC) rating shall be greater than the ampere short circuit available at the panel. Provide and locate the SPD at or inside the panel in accordance with OBO specification 16289 - Surge Protection Devices. All cables will enter from the bottom. | No. | 1 |
| 4.2.2 | Provide and install a new outdoor disconnect means at 250A, 230/400V (3 Phase, 4 wire, plus ground). | No. | 1 |
| 4.3 | Receptacles: Supply and install outlets, outlets designated GFCI are to be fed from a GFCI circuit breakers. GFCI breakers shall be rated for 10mA ground fault trip, 50Hz, 240V (line to ground) and shall be installed in an enclosure adjacent to the first receptacles in the branch circuit. The breaker will provide ground fault protection for all receptacles in the circuit. Receptacle circuits in all wet areas are to be protected by the GFCI circuit breakers (kitchen, bathroom, outdoors). Local standard receptacles may be rated 240V, 13A or 16A. All receptacles shall be 2 pole, 3 wire ground type NEMA receptacles. The contractor will provide a written report/form verifying that each receptacle has been inspected and passes an ohmmeter AC ground fault loop impedance test (less than 25 ohms) along with a ground connection test. | | |
| 4.3.1 | Provide and install AC weatherproof outlets size 40A on exterior walls near the outdoor condenser units. | No. | 7 |

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| 4.3.2 | Interior GFCI Outlets: Provide and install electrical GFCI outlets (outlets shall be connected to GFCI breaker, rated for 10mA ground fault trip 50Hz, 240V line to ground and shall be installed in an enclosure adjacent to the first receptacles in the branch circuit) in bathrooms, laundry room and kitchen. Exhaust fans are to be on a separate switch at door next to the light switch (see attached drawings). Receptacles shall be 2 pole, 3-wire ground type. They must be local type or NEMA type receptacles. Local standard receptacles may be rated 240V, 13A, 15A, or 40A. | No. | 18 |
| 4.3.3 | Exterior GFCI outlets: Provide and install new outdoor electrical receptacles (outlets shall be connected to GFCI breaker, rated for 10mA ground fault trip 50Hz, 240V line to ground and shall be installed in an enclosure adjacent to the first receptacles in the branch circuit.) with plastic weatherproof cover at the building exterior locations indicated and at the roof top water tank for the new water pressure pump. Receptacles shall be 2 pole, 3-wire ground type. They must be local type or NEMA type receptacles. Local standard receptacles may be rated 240V, 13A, 15A, or 40A. | No. | 20 |
| 4.3.4 | Interior Outlets: Provide and install an electrical outlet 13A or 15A along all interior walls every 3m. Provide sample for COR approval prior to installation. Outlet shall be installed 40cm above the floor level (see attached drawings). Receptacles shall be 2 pole, 3-wire ground type. | No. | 36 |
| 4.4 | Lighting Fixtures: Supply, install, connect, test and commission the lighting fixtures, identified below: | Note | - |
| 4.4.1 | Provide and install new Double LED Fluorescent lighting fixtures (square down light types) with covers indoor type on each interior wall with switches located at the entrances of all rooms. | No. | 28 |
| | Provide and install new Double LED Fluorescent lighting fixtures (square down light types) with covers energy-efficient weatherproof outdoor type on each exterior wall at each level with switches located at the building entrance doors. | No. | 15 |
| 4.4.2 | At the first landing between the two stairways and at the top landing provide and install Double LED Fluorescent lighting fixtures. Provide and install a 3-way switch at the bottom floor and the top floor of the stairway. | No. | 3 |
| 4.4.3 | Provide and install an emergency light with charging point at each entrance, kitchen, bathroom, living room, dining and bedroom. | No. | 5 |
| 4.4.4 | Supply, install and test LED panel light, 24 watt, waterproof for the bathrooms. | No. | 6 |
| 4.5 | Lighting Point: Supply, install and connect Lighting point including conduits and wires, switches, push buttons terminated to relevant panel board. | L.S | 1 |
| 4.6 | Grounding and Bonding: Establish a ground from panel to two ground rods 3m long and spaced not less than 1.8m apart. Connect 35mm ² copper wires to each ground rod, the city water pipe, and the main circuit breaker panel. Install an inspection pit | Set | 1 |

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| | above the underground earthing system. The pit must be level with the ground. Impedance of ground path for any electrodes must be tested and may not exceed 25 ohms (NEC 250.56). | | |
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5.0 CLOSEOUT

Prior to Final Acceptance, the contractor shall submit to the Contracting Officers Representative marked up drawings (As-Built), one A3 hard copy and one soft AutoCAD, reflecting the work as constructed. Contractor shall provide a written report/form, to the COR, verifying that each receptacle has been inspected and passes an ohmmeter AC ground fault loop impedance test (less than 25 ohms) along with a ground connection test.

6.0 SAFETY (FAR 52.236-13 Accident Prevention)

- A. The contractor shall provide and maintain work environments and procedures which will:
 - (a) Safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to contractor operations and activities.
 - (b) Avoid interruptions of Government operations and delays in project completion dates.
 - (c) Control costs in the performance of this contract.
- B. For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the contractor shall:
 - (a) Provide appropriate safety barricades, signs, and signal lights.
 - (b) Comply with the standards issued by the Secretary of Labor at 29 CFR part 1926 and 29 CFR part 1910.
 - (c) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.
- C. Contractor shall comply with all pertinent provisions of the latest version of U. S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation
- D. Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the contractor or the contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the contractor shall immediately take corrective action. If the contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

7.0 PROJECT SCHEDULE

A. Approximate dates of pre-award activities

| | |
|-------------------------|-----|
| Pre-Bid Site Survey | o/a |
| Bids Due | o/a |
| Contract Award | o/a |
| Notice to Precede (NTP) | o/a |

B. Construction Milestones, from Notice to Proceed

| | |
|---------------------------------|-----------------|
| Notice to Proceed (NTP) | |
| Project Schedule to OBO | 3 days from NTP |
| Project Design Notes / Sketches | 5 |
| FAC Review | 7 |
| Procurement, Shipping | 5 |
| Fabrication | 60 |
| Construction Completion | 90 |
| Project Acceptance | 90 |

C. Deliverables

| | |
|---------------------------------|-----------------|
| Construction Schedule | 3 days from NTP |
| Project Design Notes / Sketches | 5 |
| Submittals for Major Equipment | 3 |
| Manufacturer's Literature | 90 |
| As-Built, Warranties | 90 |

D. Commencement, Prosecution, and Completion of Work

The contractor shall be required to (a) commence work under this contract within three (3) calendar days after the date the contractor receives the Notice to Proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use "Completion Date Including punch list" not later than 90 calendar days after NTP. The time stated for completion shall include final cleanup of the premises.

8.0 RESPONSIBILITIES AND PROJECT MANAGEMENT

A. COR. A Contracting Officers Representative (COR) will be assigned to ensure quality assurance goals are met. The contractor shall provide the COR access to the site at all times.

B. Point of Contact. The COR shall be the main point of contact for this Project. The contractor shall report to the COR on (a) status of the project, (b) changes in schedule, (c) accidents and safety issues, (d) disruptions to utility services; and all other important information pertaining to the project.

C. Management Personnel. The contractor shall staff the site, full-time, with a competent senior manager who shall perform project management. Remote project management is not an option. This individual shall keep a detailed written history of the project and shall update the Government daily.

D. Site Security. The contractor is responsible for on-site security as necessary to ensure no unauthorized access to their work sites. The contractor is 100% responsible for securing their working materials and equipment. Any damage to facilities or infrastructure, which happens due to a lack of security, will be the responsibility of the contractor to correct.

E. Contractor's Temporary Work Center. The contractor will be permitted to use a designated area within the contract limits for operation of his construction equipment and office if warranted. If directed by the Contracting Officer, the contractor shall not receive additional compensation to relocate his operations. The contractor is responsible for obtaining any required additional mobilization area above that designated. On completion of the contract, all facilities shall be removed from the mobilization area within 5 days of final acceptance by the contractor and shall be disposed of in accordance with applicable host government laws and regulations. The site shall be cleared of construction debris and other materials and the area restored to its final grade. The contractor is responsible for maintaining this area in a clear orderly manner.

F. Health and Safety. The contractor shall be solely responsible for risk assessments, managing health, and safety issues associated with this project. The contractor must provide cold water to all workers at the job sites. Based on hazard assessments, contractors shall provide or afford each affected employee personal protective equipment (PPE) that will protect the employee from hazards. At a minimum PPE shall consist of eye protection, hard hats, and closed toe shoes. If the workers arrive on-site with sandals or athletic shoes, the contractor is expected to provide rubber boots to them or send them home. All construction workers and management personnel must wear hard hats at all times on the construction sites. Contractor provided rubber boots and rubber gloves shall be worn when working around concrete placement. Other PPE such as gloves, dust masks, air respirators (sewage work) are also recommended. These items must be provided at the contractor's expense. Workers may use discretion if they feel unsafe in using the equipment in a hostile environment. Any worker at an elevated location above 4 meters, with the exception of a portable ladder, must be provided and utilize a safety harness.

G. Progress Payments. If the contract awarder expects to receive more than one (1) progress payment, the contractor must submit a broken out Cost Proposal with a Schedule of Values in order to properly calculate the percentage of contract completion.