

HEART OF AMMAN PROJECT  
**RAS ALAIN SOCIAL  
INCUBATION OFFICES**

**VOLUME 3**

METHOD OF MEASUREMENT  
AND  
BILLS OF QUANTITIES

DEC, 2020

## **METHOD OF MEASUREMENTS**

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# **GENERAL REQUIREMENTS**

## **General Requirements**

### **1. Principles of Measurement**

- 1.1 The Works have been measured generally in accordance with the "Principles of Measurement (International) for Works of Construction" dated June 1979 published by The Royal Institution of Chartered Surveyors, U.K.
- 1.2 This method of measurement provides a uniform basis for measuring bills of quantities for works of construction. More detailed information than is required by this document may be given to define the precise nature of works or the circumstances under which it is to be carried out.
- 1.3 Amendments to this method of measurement for use in a particular locality or adopted for work not envisaged by this document shall be stated; an appendix is to be provided for such amendments.
- 1.4 This method of measurement may be applied equally to the measurement of proposed works and of complete works.
- 1.5 All measurements of the executed works called for in the Contract shall be based on the unit price stated in the Bills of Quantities and made according to the specifications. Any work done by the Contractor not requested in writing by the Engineer, shall not be included in the measurement.
- 1.6 In the case of discrepancy in quantities of works performed by the contractor and those shown on the drawings, and should such discrepancy be acceptable to the employer, then the quantities agreed by the Engineer shall be taken into account in the measurement of quantities.

### **2. Bills of Quantities**

- 2.1 the objects of bills of quantities are:
  - a. To assist in the accurate preparation of tenders, by providing for measurement of quantities on a uniform basis.
  - b. To provide a basis for the financial control of a project, in accordance with the conditions of contract.
- 2.2 Bills of quantities shall describe and represent the works to be carried out; work which cannot be measured accurately shall be described as approximate or given in bills of approximate quantities.
- 2.3 Conditions of contract, drawings and specifications shall be provided with the bills of quantities.
- 2.4 The section headings and classifications do not impose restrictions upon the format and presentation of bills of quantities.

### **3. Measurement**

- 3.1 Works shall be measured net as fixed in position and each measurement shall be taken to nearest 10 millimeters; this principle shall not apply to dimension stated in descriptions.
- 3.2 Unless otherwise stated, no deduction shall be made from items required to be measured by area voids of less than 0.25 m<sup>2</sup>.
- 3.3 Minimum deductions of void shall refer only to voids within the edges of measured areas; voids which are at the edges of measured area shall always be deducted, irrespective of size.
- 3.4 These principles of measurement may be used with other units of measurement but the particular amendments shall be stated.
- 3.5 Notwithstanding these principles of measurement, a separate minor building or structure may be enumerated.

### **4. Items to be Fully Inclusive**

- 4.1 Unless otherwise stated, all items shall be fully inclusive of all that is necessary to fulfill the liabilities and obligations arising out of contract and shall include:
  - a) Labor and all associated costs.
  - b) materials, goods and all associated costs
  - c) provision of plant
  - d) temporary works
  - e) establishment charges, overheads and profit

### **Description of Items**

- 4.2 Items which are required to be enumerated, or for which an item is required, shall be fully described.
- 4.3 Items which are to be measured by length or depth shall state the cross-sectional size and shape, girth or ranges of girths or such other information as may be appropriate.
- 4.4 Items which are to be measured by weight shall state the thickness or such other information as may be appropriate.
- 4.5 Items which are to be measured by weight shall state the materials thickness or such other information as may be appropriate
- 4.6 Notwithstanding this method of measurement, proprietary items may be measured in a manner appropriate to the manufacturer's tariff or customary practice.
- 4.7 The description of items in bills of quantities may refer to other documents or drawings and any reference to such information shall be understood to fulfill any requirement of this method of measurement, alternatively, reference may be made to published information.

## **5. Conditions of Contract**

5.1 The Tenderer is deemed to have covered in his unit rates all the requirements of the Conditions of Contract.

## **6. Specification**

6.1 The Tenderer is deemed to have covered in his unit rates all the requirements of the technical specifications.

## **7. Restrictions**

7.1 The Contractor shall allow in his unit rates for Restrictions, which shall include:

- a) Access to a possession or use of the site.
- b) Limitations of working space.
- c) Limitations of working hours.
- d) The maintenance of existing services on, under or over the site.
- e) The execution of completion of the working in any specific order, sections or phases,
- f) Items of a like nature.

## **8. Contractor's Administrative Arrangements**

8.1 The Contractor shall allow in his unit rates for contractor's administrative arrangements, which shall include:

- a. Site administration
- b. Supervision.
- c. Security.
- d. Safety, health and welfare of work-people
- e. Transport of work-people

## **9. Constructional Plant**

9.1 The Contractor shall allow in his unit rates for constructional plant, which shall include:

- a) Small plant and tools.
- b) Scaffolding.
- c) Cranes and lifting plant.
- d) Site transport.
- e) Plant required for specific Trades.

## **10. Contractor's Facilities**

10.1 The Contractor shall allow in his unit rates for facilities required by the contractor, which shall include:

- a) Water for the works; particulars shall be given if water will be supplied to the contractor.
- b) Lighting and power for the works, particulars shall be given if current will be applied to the contractor.
- c) Any other facilities (e.g. signboards, progress, photographs . . . etc.).

## **11.Sundry Items**

11.1 The contractor shall allow in his unit rates for sundry items, which shall include:

- a) Testing of materials
- b) Testing of the works.
- c) Protecting the works from inclement weather.
- d) Removing rubbish, protective casings and coverings and cleaning the works at completion.
- e) Traffic regulations.

## **MASONARY**

## Masonry

### **BLOCK WORKS**

Generally

- 1.1 Block works shall be measured net as indicated in the BOQ built in position for the various thickness specified, including mortar, metal lath, corner beads, lentils, reinforcement steel, measured by meter square.

The unit rate is deemed to include:

- Mortar for bedding and jointing.
- Fine sand to be filled in cavities
- Raking out joints or leaving rough joints to form key
- Battering work (i.e. sloping with parallel sides)
- Extra materials for curved work, tapering work and for work bonded at back to other work
- Temporary strutting to work used as Formwork
- Joint reinforcement in reinforced work
- Overhand building
- Forming cavities in hollow walls and between wall and other work, including providing wall ties, and closing cavities at ends, tops and around openings including extra materials
- Bonding ends of walls to other work including providing ties reinforcement and anchorage or other fixings and extra material in bonding
- Pinning upload bearing walls to structural soffits and filling voids with mortar
- Reveals, angles and intersections
- Rough and fair cutting
- Grooves, throats, mortices, chases, rebates, holes, stops, mitres and the like
- Labors in returns, ends and angles
- Building in or cutting and pinning ends of lintels, sills, bearing bars, steps, timbers, steel sections and the like
- Templates for forming openings and lift shafts, centering, and temporary supported protection to built-in frames
- Fixings in position
- Labors, tools, scaffolding, and overhead and profit

## **METALS**

## **Metals**

### **1. Stairs, balustrades, railings and the like**

- 1.1 Each kind of work is given separately, stating the kind of material and finish as delivered. Staircases and the like which include integral balustrades are so described.
- 1.2 Each height of balustrade and the like is given separately. Raking and curved work are each so described.
- 1.3 Dimensions and details are stated in descriptions, where necessary, to identify the work.
- 1.4 Balustrades and the like are given in meters.

### **2. Metal fabrications, decorative metal items, gratings and the like**

- 1.1 Each kind of work is given separately, stating the kind of material and finish as delivered.
- 1.2 Each item is given separately. Dimensions and details are stated in descriptions, where necessary, to identify the work.
- 1.3 Curved work is so described.
- 1.4 Rates for measured work are deemed to include the costs of: surface treatments applied as part of the production process, finishes, where part of the item as delivered, rebates, grooves, splays, chamfers, mouldings and the like labours including ends, angles, fixings, fastenings and gaskets, cutting and fitting around obstructions, protection.

## **SPECIALIST WOOD WORKS**

## **Specialist Wood Works**

### **1. Generally**

- 1.1 Each kind of work is given separately, stating the kind of material and finish as delivered.
- 1.2 Dimensions and details are stated in descriptions, where necessary, to identify the work. Dimensions stated for wood are deemed to be finished sizes unless stated as nominal.
- 1.3 Curved work is so described.
- 1.4 Rates for measured work are deemed to include the costs of:
  - surface treatments and preservative treatments applied as part of the production process,
  - finishes, where part of the item as delivered,
  - rebates, grooves, splays, chamfers, mouldings and the like labours on wood including ends, angles, fixings, fastenings and gaskets, cutting and fitting around obstructions, protection.

### **2. Wood Cabinets**

- 1.1 Each kind and type of cabinet is given separately.
- 1.2 Dimensions, types and details are stated in descriptions, where necessary, to identify the work.
- 1.4 Cabinets are given in meters.
- 1.5 Rates for measured work are deemed to include the costs of:
  - all component parts, finishing including applied finishes, ironmongery and accessories,
  - providing everything necessary for jointing, sealant and pointing,
  - adjusting, easing and lubricating, cleaning on completion,
  - placing and fixing in final position, extra material and labour in secure anchorage,
  - product data, shop drawings and samples, protection.

## **THERMAL AND MOISTURE PROTECTION**

## **Thermal and moisture protection**

### **1. Thermal and moisture protection:**

Each kind of thermal and moisture protection items are given separately stating the type of material.

The unit rate is deemed to include:

- Preparation of surfaces
- All necessary related works shown on the drawings and called for in the Specifications
- Repair waterproof membrane are given in item.
- Liquid waterproof insulation is given in meter square

## **DOORS AND WINDOWS**

## **Doors and Windows**

### **1. Doors and Windows:**

1.1 Each kind of work is given separately, stating the kind of material and finish as delivered. Windows, doors, screens, and the like which include associated frames or linings and ironmongery are each so described.

1.2 Each type of unit is given separately. Dimensions and details are stated in descriptions, where necessary, to identify the work. Dimension stated for wood are deemed to be finished sizes unless stated as nominal.

1.3 Multi-leafed doors are counted as one door type.

1.4 Windows, doors, screens, , louvers and the like are enumerated or given in enumerated.

1.5 Door frames, architraves and linings are included in unit price.

1.6 Rates for measured work are deemed to include the costs of:

frames, sills, louvres, doors, opening portions and insect screens, where supplied with the unit,

glazing beads, gaskets, weather strips, flashings, architraves, trims and the like accessories, where supplied with the unit,

glass and glazing, where supplied with the unit,

ironmongery and operating equipment, where supplied with the unit, hardware sets and all sundry ironmongery, where supplied with the unit, fitting and hanging doors,

surface treatments and preservative treatments applied as part of the production process,

finishes, where part of the unit as delivered, priming backs of frames and the like,

rebates, grooves, splays, chamfers, mouldings and the like labours on wood including ends, angles,

sub-frames, packing's, bearers, grounds and the like,

fixing and fastening, bedding, jointing and pointing including providing materials,

cutting and fitting around obstructions, firestopping to door frames and doors.

## **FINISHES**

## **Finishes:**

### **1. Gypsum board**

- 1.1 Each kind of lining is given separately. Work which includes integral insulation, vapor barriers, fire barriers, isolating membranes, moisture resistant treatment and the like are each so described.
- 1.2 Lining to sides of openings, to projections, nibs, recesses and rebates, and to steps in surfaces is included with the measurement of work to the adjacent surface.
- 1.3 Lining to isolated columns is only measured as such when their length on plan is not exceeding four times their thickness.
- 1.4 Lining to isolated beams and isolated columns include attached beams and attached columns where the work is different from the abutting ceilings and walls.
- 1.5 Thickness and height of partitions are stated in descriptions. Partitions boarded one side and boarded both sides are each so described.
- 1.6 Dimensions, types, and details of features are stated in descriptions, where necessary, to identify the work.
- 1.7 Linings are given in square meters measured on the external face and over obstructions. No deduction is made for voids not exceeding 0.50 m<sup>2</sup>. No allowance in the measurement is made for lapped joints.
- 1.8 Band courses, coves, mouldings, cornices, architraves and the like features are given in meters.
- 1.9 Rates for measured work are deemed to include the costs of:
  - fixings including head and sole plates, studs, stiffening sections, firings and channels, fixings for heavy fittings, and other fixing materials,
  - jointing including fair joints, jointing battens, fillets, beads and the like, joint and reinforcing tape,
  - finishing including plaster for dabs, filling and finishing, work at any height above floor level, work of any width, height or girth, working overhead,

**2. Plaster and cement the unit rate is deemed to include:**

- 2.1 Cement sand plaster materials as specifications section (plaster guides should be for walls and ceilings).
- 2.2 All mixes mentioned in specification section.
- 2.3 Metal accessories, expansion joints and anchorages as specified in the specifications.
- 2.4 Completion of the work as specified.
- 2.5 Angles beads, casing stops and wire mesh
- 2.6 All necessary related works and materials.

**3. Floor and Wall Tiling – Generally**

- 3.1 Each kind of tiling and slab is given separately. Patterned work and work in multi-colors are each so described stating the nature of the work.
- 3.2 Works to each of the following is given separately:  
floors,
  - treads, risers,
  - channels,
  - skirtings,
  - saddles,
  - walls, including attached columns,
  - isolated columns,
  - isolated beams,
  - ceilings, including soffits, sides and soffits of attached beams, and soffits of staircases and landings.
- 3.3 Works to arches and other special features are each given separately.
- 3.4 Works to side of openings, to projections, nibs, recesses, and rebates and the like is included with the measurement of works to the adjacent surface.
- 3.5 Isolated columns are only measured as such when their respective length on plan is not exceeding four times their thickness.
- 3.6 Thickness, dimensions, types and details are stated in descriptions where necessary to identify the work.
- 3.7 Thickness stated for tiles and slabs is the thickness exclusive of keys, grooves and the like.
- 3.8 Work to floors, walls, ceilings, isolated columns, isolated beams and the like is given in square meters measured on the exposed face. No deduction is made for voids not exceeding 0.50m<sup>2</sup>.

#### **4. Floor and Wall Tiling – Generally / CONT'D**

- 4.1 Work to skirtings, saddles, treads, risers, nosings and the like is given in meters.
- 4.2 Rates for measured work are deemed to include the costs of:
- work at any height above floor level, setting out,
  - extra work involved in patterned work and work in multi-colors, work of any width, height and girth,
  - special and non-standard tiles and slabs,
  - slabs and tiling laid to falls and cross falls
  - raking and vertical work to string, aprons and the like,
  - sand leveling bed, cement-sand screeds,
  - adhesive and fixing materials and/or devices,
  - bedding and fixing including bedding and backing mortars,
  - all cutting including circular cutting,
  - internal and external angles, intersections, joints,
  - division strips and anti-slip nosings,
  - jointing, grouting, cleaning, sealing,
  - grinding and polishing including working overhand and working over and around obstructions,
  - temporary support, supports for roof paving,
  - shop drawings, samples and test results, protection

## 5. Painting – Generally

- 1.1 Painting is measured in square meters for the net area covered. Work to narrow widths will be incorporated in the measurement.
- 1.2 Painting for all metal and wooden works shall not be measured included but shall be deemed included with the related measured works.
- 1.3 Rates for measured work are deemed to include the costs of
  - internal and external work,
  - preparatory work,
  - method of application,
  - rubbing down between coats, easing,
  - work required to be carried out before fixing, whether on or off site,
  - stopping, filling and priming,
  - priming backs of frames, edges of rebates and beads and bottoms of doors,
  - work in multi-colors, defined as the application of more than one colour on an individual surface or in one room,
  - removing ironmongery from surfaces to be decorated and re-fixing,
  - masking adjacent surfaces,
  - samples and product data, protection.

## **MECHANICAL WORKS**

**A. PREAMBLES:**

- 1.0 The Scope of works includes the supply, delivery to site, installation, commissioning and testing of the various complete systems outlined in contract, and as described elsewhere in the specification documents.

The contractor shall be responsible to visit the site to familiarize himself with the scope of work.

- 2.0 The work shall comprise the whole of the labor and, unless otherwise indicated, all the materials necessary to form a complete installation and such tests, adjustments and commissioning as are prescribed in subsequent clauses and as may otherwise be required to give an effective working installation to the satisfaction of the Engineer.

- 3.0 This specification is for the Mechanical works. However, the Instructions to Tenders, Form of Tender, Conditions of contract, Preliminaries Section and any Supplementary Conditions of Contract applicable to Main Contract shall be applicable to this contract also.

- 4.0 The term Contractor used in the Mechanical documents and drawings is to be considered to mean the Contractor for Mechanical works.

- 5.0 Contractor shall be responsible for proper performance of all Mechanical systems in accordance with relevant standards and codes and design parameters listed hereinafter.

- 6.0 Provide all items, articles, materials, operations, sundries, labor, supervision, guarantees, allowances for overhead and profit, etc., to achieve a fully functional and acceptable system.

- 7.0 The precedence of documents and drawings shall be as determined in the Main Contract. However, consider the specifications as an integral part of the work together with the drawings. Consider any item or subject omitted from one, but mentioned or reasonably implied on the other as properly and sufficiently indicated.

- 8.0 The Contractor is responsible for developing his own take off of materials and is to make this available as requested to the Consultant.

**B. EXAMINATION OF SITE AND DRAWINGS**

- 1.0 Visit the site of the proposed works and obtain all information as to existing conditions and limitation.

- 2.0 Examine the documents including the Specifications and Drawings of all other Divisions before bidding and again before commencing any portion of the works.

- 3.0 Neither the Owner nor the Consultant will be responsible for any claim for extra work or expense resulting from the failure of the Contractor to be fully aware of Site Conditions.

## C. CONTRACT DRAWINGS

- 1.0 The drawings for services works are design drawings, diagrammatic, and intended to convey the scope of work and indicate general arrangement and approximate locations of apparatus, fixtures, pipe, etc. The drawings do not intend to indicate architectural or structural details.

These cannot be used as shop drawings. Contractor must develop own detailed shop drawings for work at site.

- 2.0 Do not scale drawings. Obtain accurate dimensions to structure and architectural items from drawings of those trades. Confirm by site measurement. Verify location and elevation of all services (, Mechanical, Telephone, etc..) before proceeding with the work.
- 3.0 Make at no extra cost, any changes or additions to materials, and/ or equipment necessary to accommodate structural conditions (pipes or ducts around beams, columns, etc.)
- 4.0 Alter, at no additional cost, the location of materials and/ or equipment as directed, provided that the changes are made before installation and do not necessitate additional material.
- 5.0 Install all ceiling mounted components (Diffusers, grilles, detectors, light fixtures, emergency lights, fire detectors, loudspeakers, camera points, etc.) in accordance with the reflected ceiling drawings which are to be prepared by the Contractor and coordinated with all trades. These must be submitted for approval and be approved before any work commences on site.
- 6.0 Leave space clear and install all work to accommodate future materials and/or equipment as indicated and/or supplied by other divisions of work of the contract. Install all pipe runs, conduit runs, cable trays, etc., to maintain maximum headroom and clearances, and to conserve space in shafts and ceiling spaces and under floors, and to provide adequate space for service and maintenance.
- 7.0 Confirm on the site the exact location of outlets and fixtures.
- 8.0 Obtain Manufacturers' installation directions to aid in the proper execution of the work. Submit two copies of such directions to the Consultant prior to installation, for use in inspecting the work.
- 9.0 Confer with all trades installing equipment which may affect the work of this division, and arrange equipment in proper relation with that equipment installed under all Divisions of the Contract.
- 10.0 The Unit Price of the materials and equipment in Bills of Quantities shall be comprehensive and shall include for complying in all respects with the requirements of the Technical Specifications, covering the obligations under the contract and all matters and things necessary for the proper construction, completion of and remedy of defects in the works. No claims for additional payment will be allowed for any error, or misunderstanding of the work involved by the contractor.

**D. CONTRACTORS RESPONSIBILITY**

- 1.0 The appointed Contractor shall accept full functional responsibility for all Mechanical services to meet the requirements of the Client/Engineer and generally in accordance with this specification.
- 2.0 Supply materials and equipment
- 3.0 Off loading and handling from trucks on site to place of installation (including carnage, putting in place, and unpacking)
- 4.0 Installation of materials and equipment.
- 5.0 All civil work required and connected with the Mechanical installations, such as: equipment concrete bases and supports, cutting through walls and slabs for passage of piping and ducting to structure, excavation and back fillings, riggings, hoisting, water proofing, cleaning protection and painting.
- 6.0 All testing commissioning and operation by independent company (if applicable), they shall include for expenses of tests ordered by the engineer, and all costs of repairs to damage caused by the Contractor's work.
- 7.0 All labor, materials, tools and instruments required for installation, testing, operation, and commissioning.
- 8.0 Shop-drawings and record drawings.
- 9.0 Samples as required by the Engineer.

**E. RULES OF MEASUREMENTS MECHANICAL SERVICES**

- 1.0 The unit rate for any material or equipment mentioned in this contract as described in tender documents complete.

**F. SCHEDULE OF MANUFACTURERS – ELECTRICAL WORKS**

All materials supplied under this contract have to be approved and accepted by Engineer.

## **ELECTRICAL WORKS**

**A. PREAMBLES:**

- 1.0 The Scope of works includes the supply, delivery to site, installation, commissioning and testing of the various complete systems outlined in contract, and as described elsewhere in the specification documents.

The contractor shall be responsible to visit the site to familiarize himself with the scope of work.

- 2.0 The work shall comprise the whole of the labour and, unless otherwise indicated, all the materials necessary to form a complete installation and such tests, adjustments and commissioning as are prescribed in subsequent clauses and as may otherwise be required to give an effective working installation to the satisfaction of the Engineer.

- 3.0 This specification is for the Electrical works. However, the Instructions to Tenderers, Form of Tender, Conditions of contract, Preliminaries Section and any Supplementary Conditions of Contract applicable to Main Contract shall be applicable to this contract also.

- 4.0 The term Contractor used in the Electrical documents and drawings is to be considered to mean the Contractor for Electrical works.

- 5.0 Contractor shall be responsible for proper performance of all Electrical systems in accordance with relevant standards and codes and design parameters listed hereinafter.

- 6.0 Provide all items, articles, materials, operations, sundries, labour, supervision, guarantees, allowances for overhead and profit, etc., to achieve a fully functional and acceptable system.

- 7.0 The precedence of documents and drawings shall be as determined in the Main Contract. However, consider the specifications as an integral part of the work together with the drawings. Consider any item or subject omitted from one, but mentioned or reasonably implied on the other as properly and sufficiently indicated.

- 8.0 The Contractor is responsible for developing his own take off of materials and is to make this available as requested to the Consultant.

**B. EXAMINATION OF SITE AND DRAWINGS**

- 1.0 Visit the site of the proposed works and obtain all information as to existing conditions and limitation.

- 2.0 Examine the documents including the Specifications and Drawings of all other Divisions before bidding and again before commencing any portion of the works.

- 3.0 Neither the Owner nor the Consultant will be responsible for any claim for extra work or expense resulting from the failure of the Contractor to be fully aware of Site Conditions.

## C. CONTRACT DRAWINGS

- 1.0 The drawings for services works are design drawings, diagrammatic, and intended to convey the scope of work and indicate general arrangement and approximate locations of apparatus, fixtures, pipe and duct runs, etc. The drawings do not intend to indicate architectural or structural details.

These cannot be used as shop drawings. Contractor must develop own detailed shop drawings for work at site.

- 2.0 Do not scale drawings. Obtain accurate dimensions to structure and architectural items from drawings of those trades. Confirm by site measurement. Verify location and elevation of all services (, Electrical, Telephone, etc.) before proceeding with the work.
- 3.0 Make at no extra cost, any changes or additions to materials, and/ or equipment necessary to accommodate structural conditions (pipes or ducts around beams, columns, etc.)
- 4.0 Alter, at no additional cost, the location of materials and/ or equipment as directed, provided that the changes are made before installation and do not necessitate additional material.
- 5.0 Install all ceiling mounted components (Diffusers, grilles, detectors, light fixtures, emergency lights, fire detectors, loudspeakers, camera points, etc.) in accordance with the reflected ceiling drawings which are to be prepared by the Contractor and coordinated with all trades. These must be submitted for approval and be approved before any work commences on site.
- 6.0 Leave space clear and install all work to accommodate future materials and/or equipment as indicated and/or supplied by other divisions of work of the contract. Install all pipe runs, conduit runs, cable trays, etc., to maintain maximum headroom and clearances, and to conserve space in shafts and ceiling spaces and under floors, and to provide adequate space for service and maintenance.
- 7.0 Confirm on the site the exact location of outlets and fixtures.
- 8.0 Obtain Manufacturers' installation directions to aid in the proper execution of the work. Submit two copies of such directions to the Consultant prior to installation, for use in inspecting the work.
- 9.0 Confer with all trades installing equipment which may affect the work of this division, and arrange equipment in proper relation with that equipment installed under all Divisions of the Contract.
- 10.0 The Unit Price of the materials and equipment in Bills of Quantities shall be comprehensive and shall include for complying in all respects with the requirements of the Technical Specifications, covering the obligations under the contract and all matters and things necessary for the proper construction, completion of and remedy of defects in the works. No claims for additional payment will be allowed for any error, or misunderstanding of the work involved by the contractor.

**D. CONTRACTORS RESPONSIBILITY**

- 1.0 The appointed Contractor shall accept full functional responsibility for all electrical services to meet the requirements of the Client/Engineer and generally in accordance with this specification.
- 2.0 Supply materials and equipment
- 3.0 Off loading and handling from trucks on site to place of installation (including carnage, putting in place, and unpacking)
- 4.0 Installation of materials and equipment.
- 5.0 All civil work required and connected with the electrical installations, such as: equipment concrete bases and supports, cutting through walls and slabs for passage of conduits, trunking and cable trays/ladders support s to structure, excavation and back fillings, riggings, hoisting, water proofing, cleaning protection and painting.
- 6.0 All testing commissioning and operation by independent company (if applicable), they shall include for expenses of tests ordered by the engineer, and all costs of repairs to damage caused by the Contractor's work.
- 7.0 All labor, materials, tools and instruments required for installation, testing, operation, and commissioning.
- 8.0 Shop-drawings and record drawings.
- 9.0 Samples as required by the Engineer.

**E. Materials, Equipment and Installations**

- 1.0 The unit rate for any material or equipment mentioned in this contract as described in tender documents complete.

**F. SCHEDULE OF MANUFACTURERS – ELECTRICAL WORKS**

All materials supplied under this contract have to be approved and accepted by Engineer.

HEART OF AMMAN PROJECT

# **RAS ALAIN SOCIAL INCUBATION OFFICES**

**VOLUME -3**

**- BILLS OF QUANTITIES (BOQ)**



**TEL: +962 799 779 978**  
**Amman, Jordan**

**December - 2020**

**- BILLS OF QUANTITIES (BOQ)**

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
****	<p><b><u>CONTRACT REQUIREMENTS:</u></b></p> <p>1 Contractor shall start demolishing by utilizing machine that does not create dynamic vibration such as electrical digger.</p> <p>2 The Contractor shall be responsible for removing any demolition debris from the site to legal disposal sites all in accordance with local ordinances and applicable environmental regulations.</p> <p>3 The contractor shall collect, protect and keep all dismantled materials and handle them to The Owner to relocate/ reuse as per Engineer approval.</p> <p>4 The Contractor shall perform Daily Cleaning and Weekly Tidying of the Site.</p> <p>5 Contractor shall provide samples for all materials for the approval of supervising engineer.</p> <p>6 The engineer/ client can modify and/or change any type of materials without any claims.</p>				
	Carried to Collection				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>DEMOLISHING WORKS</b>				
	<b>Carefully demolish and remove concrete block walls, price to include removing plaster, paint, wall tiles and debris from site, repairing sides of walls and ceiling to receive new condition and all necessary complete as shown on drawings and as Engineer approval.</b>				
A	Concrete block walls, 100mm thick	330	m <sup>2</sup>		
B	Concrete block walls, 200mm thick at Ramp area	5	m <sup>2</sup>		
	<b>Carefully cut and make opening at external block walls as per drawings and engineer instructions. The unit price shall include cost of conducting necessary repair work, plastering, fixing and removing debris from site.</b>				
C	Opening at ground floor external block walls 200mm thick, size (40x318)cm, axis D/3-3'	1	no.		
D	Opening at first floor external block walls 100mm thick, size (100x395)cm, terrace opening	2	no.		
E	Opening at first floor external block walls 100mm thick, size (20x140)cm, lintel for terrace opening	2	no.		
F	Under window opening, external walls size (140x90)cm	2	no.		
	<b>Carefully dismantle and remove floor tiles, price to include removing sand fill, mortar and debris from site and all necessary complete as shown on drawings &amp; Engineer approval.</b>				
G	Existing toilets floor tiles at GF	15	m <sup>2</sup>		
H	Existing toilets floor tiles at FF	5	m <sup>2</sup>		
I	External concrete floor and steps to reinstall ramp	10	m <sup>2</sup>		
	<b>Carefully dismantle and remove shaft wall tiles (at places that have not been demolished), price to include removing debris from site and all necessary complete as shown on drawings &amp; Engineer approval.</b>				
J	Shaft wall tiles at GF	6	m <sup>2</sup>		
K	Shaft wall tiles at FF	14	m <sup>2</sup>		
	<b>Carried to Collection</b>				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>DEMOLISHING WORKS CONT'D</b>				
	Carefully dismantle and remove wooden door, aluminum windows, price to include frames, handling all items to the owner, removing debris from site and all necessary complete as shown on drawings & Engineer approval.				
A	Wooden doors	13	no.		
B	Aluminum windows	2	no.		
	Carefully dismantle and remove Selvia marble internal stairs (treads and risers), price to include handling all items to the owner, removing debris from site and all necessary complete as shown on drawings & Engineer approval.				
C	Selvia marble stairs (treads and risers)	1	Item		
	Carefully dismantle and remove internal stair handrail, price to include handling all items to the owner, removing debris from site and all necessary complete as shown on drawings & Engineer approval.				
D	Staircase handrail	1	Item		
	Carefully dismantle and remove toilet fixtures, price to include handling all items to the owner, removing debris from site and all necessary complete as shown on drawings & Engineer approval.				
E	Hand basin	5	no.		
F	WC	5	no.		
G	Showers at GF	3	no.		
H	Showers at FF	2	no.		
	Carried to Collection				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>DEMOLISHING WORKS CONT'D</b>				
	<b>Carefully dismantle and remove kitchen cabinets, price to include handling all items to the owner, removing debris from site and all necessary complete as shown on drawings &amp; Engineer approval.</b>				
A	Cabinets, Counter and sink	1	Item		
	<b>Carefully dismantle and remove existing electrical installation, price to include fixtures, removing wires, accessories, switches, sockets, cleaning and repairing ceiling and walls to receive new materials, handling all materials to the owner complete as shown on drawings and as Engineer approval.</b>				
B	Existing electrical installation, internally and externally for floors, walls and ceilings	1	item		
	<b>Carefully dismantle and remove water and drainage pipes, mechanical accessories, price to include removing debris from site and all necessary complete as shown on drawings and as Engineer approval.</b>				
C	Existing water and drainage pipes	1	item		
	<b>Carefully dismantle and remove electrical water heaters , price to include handling all materials to the owner complete as shown on drawings and as Engineer approval.</b>				
D	Existing electrical water heaters	1	item		
	<b>Carefully dismantle and remove Distribution panels price to include handling all materials to the owner complete as shown on drawings and as Engineer approval.</b>				
E	Existing distribution panels	1	item		
	<b>Carried to Collection</b>				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<p><b>RAMP</b></p> <p>Reinforced concrete slab 15cm thick, price to include single size gravel, backfill, reinforcement steel Ø10mm @20cm c/c, porcelain tiles (12m<sup>2</sup> mortar, grouting, cleaning and all necessary complete as shown on drawings and Engineer Approval.</p>				
A	Reinforced concrete slab 15cm thick	1	Item		
	<p><b>BLOCKWORK</b></p> <p>Supply and install hollow concrete block walls in cement and sand mortar, price to include all cutting, bonding, bond beams, concrete jambs, concrete lintels, steel reinforcement complete as shown on drawings, as per specifications and as Engineer approval.</p>				
B	For walls, 100mm thick	101	m <sup>2</sup>		
C	For walls, 150mm thick walls	13	m <sup>2</sup>		
	Carried to Collection				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
A	<p><b>WOODEN CABINETS</b></p> <p>Supply and install wooden kitchen cabinets, wood coated with laminate, white color, price to include double bowl kitchen sink (1.40m length), Italian granite counter top (100 JOD/lm), mixer, connections to existing services, fixing in position, all accessories complete as shown on drawings and Engineer approval.</p> <p>Kitchen cabinets</p>	8	lm		
	Carried to Collection				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<p><b>INSULATION</b></p> <p><b>Repair existing insulation layers at external terrace and where required complete as shown on drawings, as per specifications and as Engineer approval.</b></p> <p>A Repair existing insulation layers at external terrace and where required</p> <p><b>Supply and apply two layer of cool water proof paint to wet areas complete all as specified and as shown on drawings and Engineer approval.</b></p> <p>B Wet Area water proof paint at first floor</p> <p>Carried to Collection</p>	<p>1</p> <p>6</p>	<p>Item</p> <p>m<sup>2</sup></p>		

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>DOORS AND WINDOWS</b>				
	<b><u>WOODEN DOORS</u></b>				
	<b>Supply and install wooden doors, solid wood frame price to include sub frame, architraves, lipping, ironmongery, fixing in position, white Polyester paint and decorations complete as specified, as shown on the drawings, and Engineer approval.</b>				
A	Painted wooden doors, GF, size (80x220)cm	1	no.		
B	Painted wooden doors, GF, size (100x200)cm	1	no.		
C	Painted wooden doors, FF size (84x220)cm	2	no.		
D	Painted wooden doors, FF size (94x220)cm	3	no.		
	<b><u>STEEL DOORS</u></b>				
	<b>Supply and install steel doors, price to include insulation, ironmongery, fixed in position with frames, Dulux painting and decoration complete as specified, as shown on drawing and Engineer's approval.</b>				
E	Fire rated exit door with panic bar at GF size (110x223)cm	1	no.		
F	Terrace steel door insulated with rockwool size (100x220)cm	1	no.		
	<b><u>ALUMINUM PARTITIONS AND DOORS</u></b>				
	<b>Supply and install Aluminum partition, section type GR9 complete price to include aluminum doors, ironmongery, frame, rubber seal, rod foam, double glazed panels, rubber pad, sealant silicon, fixed in position with sub frames, air tightness and thermic insulation all as shown on drawings, as specified and Engineer approval.</b>				
G	Grey aluminum partition size (290x215)cm, section type GR9, including main door size (100x205)cm	1	no.		
H	Aluminum door type D01 size (395x265)cm	1	no.		
I	Aluminum door type D02 size (331x275)cm at elevation -1	1	no.		
J	Aluminum door type D02 size (396x275)cm at elevation -2	1	no.		
K	Double glazed 1.2cm thick laminated glass, blue paint from the middle, partition type D03 size (283x210)cm	1	no.		
L	Securite glass partition size (122x290)cm including door size (98x290)cm	1	no.		
	<b>Carried to Collection</b>				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>DOORS AND WINDOWS CONT'D</b>				
	<b><u>SECURITE BALUSTRADE</u></b>				
	Supply and install securite balustrade 6 mm thick , stainless steel handrail, price to include securite balustrade 6mm thick, stainless steel handrail and all necessary frames, sub frames, fixing, fittings and accessories complete as shown on drawings and Engineer approval.				
A	Securite glass balustrade 6mm thick , stainless steel handrail	40	lm		
	<b><u>WINDOWS METAL PROTECTION</u></b>				
	Supply and apply windows metal protection painting, price to include paint, rust cleaning and all necessary complete as shown on drawings and Engineer approval.				
B	Windows metal protection painting	1	Item		
	<b><u>METAL FENCE</u></b>				
	Supply and install galvanized wire mesh border height 2.5m, price to include, cyclopean concrete foundation 50cmx50cmx50cm @2.50m c/c, posts, three rows of galvanized wire Ø3mm, three rows of galvanized barbed wires height 0.30cm, and all necessary complete as shown on drawings and Engineer approval.				
C	Galvanized wire mesh border	130	lm		
D	Ditto, but for gate size (300x250)m	1	no.		
	Carried to Collection				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>FINISHES</b>				
	<b>INTERNAL FLOOR FINISHING</b>				
	<b><u>PORCELAIN TILES</u></b>				
	<b>Supply and install First quality porcelain floor tiles. Price to include adhesive, sand fill, cutting, trims, accessories, movement joints, grouting, and cleaning complete as shown on drawing (A007) and Engineer approval. From Al Quds Company or equivalent (materials price 12 JOD).</b>				
A	Porcelain floor tiles size (60x60)cm, grey matt, type T01	182	m <sup>2</sup>		
B	Porcelain floor tiles size (60x60)cm, grey matt, type T03	91	m <sup>2</sup>		
C	8cm porcelain skirting, grey matt, type 01	122	lm		
	<b>Supply and install First quality porcelain floor tiles. Price to include mortar, sand fill, cutting, fillings, trims, accessories, movement joints, grouting, and cleaning complete as shown on drawing (A007) and Engineer approval. From Al Quds Company or equivalent, materials price 12 JOD.</b>				
D	Porcelain toilet floor tiles size (60x30)cm, grey matt, type T02	85	m <sup>2</sup>		
	<b>MARBLE TILES - STAIRS</b>				
	<b>Supply and install First quality Karaki or Beir Zait marble tiles. Price to include cement and sand bed, adhesive, cutting, fittings, trims, accessories, movement joints, grouting, and cleaning complete as shown on drawings, as per specifications and Engineer approval.</b>				
E	For treads 30 mm thick and risers 30 mm thick	7	m <sup>2</sup>		
F	Ditto, but for straight skirting	8	lm		
	Carried to Collection				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>FINISHES CONT'D</b>				
	<b>INTERNAL WALLS FINISHING</b>				
	<b><u>PORTLAND CEMENT PLASTER</u></b>				
	Supply and apply 20 mm thick, three coats of cement and sand (1:4) plastering. Price to include angle beads, casing stop, grooves and metal lath, and all necessary complete as shown on drawings and Engineer approval.				
A	To concrete or block walls, internally	164	m <sup>2</sup>		
	<b><u>WALLS PAINTING</u></b>				
	Supply and apply First quality emulsion paint, Dulux, for walls on cement plaster, prepare and apply one coat primer and two full coats emulsion paint including preparation works, undercoats complete as shown on drawings as per specifications and Engineer approval.				
B	Paint for walls	176	m <sup>2</sup>		
	Supply and apply First quality outdoor weather shield paint, , Dulux, white color, price to include preparation works, under coats, complete as shown on drawings and Engineer approval.				
C	Outdoor weather shield paint, white color	400	m <sup>2</sup>		
	Carried to Collection				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>FINISHES CONT'D</b>				
	<b>INTERNAL CEILING FINISHING</b>				
	<b><u>GYPSUM BOARD</u></b>				
	<b>Supply and install Gypsum board suspended ceiling, moisture resistant for wet areas, Saudi type from United Gypsum Company or equivalent, price to include suspension system, shadow gap, access panels, fixings, fittings, accessories, skin coat complete as shown on drawings and Engineer approval.</b>				
A	For wet areas ceilings	74	m <sup>2</sup>		
B	Bulkheads, 15cm height	40	lm		
	<b><u>EMULSION PAINT</u></b>				
	<b>Supply and apply First quality paint for gypsum boards, Dulux, white color, price to include preparation works, under coats, complete as shown on drawings and Engineer approval.</b>				
C	For wet areas ceilings	74	m <sup>2</sup>		
D	Bulkheads, 15cm height	40	lm		
	<b><u>ACCOUSTIC TILES</u></b>				
	<b>Supply and install Acoustic tiles, Saudi type or equivalent, white color, price to include suspension system, fixings, fittings, accessories complete as shown on drawings and Engineer approval.</b>				
E	Acoustic tiles size (600x600)mm for ceilings	120	m <sup>2</sup>		
	Carried to Collection				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>MECHANICAL WORKS</b>				
	<b><u>DRAINAGE INSTALLATION</u></b>				
	<b>Furnish , installing, test and commission below ground UPVC pipes for waste drainage price to include excavations and all necessary fixings and fittings, connecting to the nearest existing service line complete as shown on drawings &amp; Engineer approval.</b>				
A	UPVC pipes Ø50mm	9	lm		
B	UPVC pipes Ø80mm	3	lm		
C	UPVC pipes Ø110mm	10	lm		
	<b><u>Floor Drain</u></b>				
D	Floor Drain 4"	7	no.		
	<b><u>SANITARY FIXTURES</u></b>				
	<b>Furnish , installing, test and commission sanitary fixtures, European type, price to include trims, taps, mixers, brackets, stays, plugs, accessories, short length of pipes, type and color to be selected by the Engineer, complete as shown on drawings &amp; Engineer approval.</b>				
E	Water closet (W.C.) with flush complete	3	no.		
F	Handicapped WC including all accessories complete	1	no.		
G	Handicapped wash basin complete	1	no.		
H	Wash basin complete	3	no.		
	<b>Carried to Collection (JD)</b>				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>MECHANICAL WORKS CONT'D</b>				
	<b><u>COLD AND HOT WATER INSTALLATION</u></b>				
	<b>Supply and install Cold CPVC pipes and fittings price to include all necessary joints, tees, elbows, union, reducers, hangers, valves, supports, connections, and all necessary accessories complete as shown on drawings &amp; Engineer approval.</b>				
A	CPVC pipe Ø20	45	lm		
B	CPVC pipe Ø25, supply water pipes	14	lm		
	<b>Supply and install Hot CPVC pipes and fittings price to include insulation, all necessary joints, tees, elbows, union, reducers, hangers, valves, connections, and all necessary accessories complete as shown on drawings &amp; Engineer approval.</b>				
C	CPVC pipe Ø20	36	lm		
	<b><u>SPLIT UNIT</u></b>				
	<b>Supply and install Split unit Samsung or equivalent, price to include refrigeration piping system, compressors, condensate pipes to the nearest floor drain, drainage, filters, isolating valves, thermostat, controls, electrical and mechanical connections, complete as shown on drawings and Engineer approval</b>				
D	AC split unit 1-ton	4	no.		
E	AC split unit 2-ton	2	no.		
	<b><u>WATER CABINET</u></b>				
	<b>Supply and install Supply and install water cabinet, price to include fixings, fittings, connections, accessories and all necessary accessories complete as shown on drawings &amp; Engineer approval.</b>				
F	Water cabinet size (60x60)cm	2	no.		
	<b>Carried to Collection (JD)</b>				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
<b>MECHANICAL WORKS CONT'D</b>					
<u><b>ELECTRICAL WATER HEATER</b></u>					
<p><b>Re install electrical water heater, Local Manufacturer, price to include all necessary fittings, fixings, accessories complete as shown on drawing , as per specification, and Engineer approval.</b></p>					
A	EWH 60 liter	2	no.		
<u><b>WATER PUMP</b></u>					
<p><b>Supply and install Electric water pump 0.50 hp, Easypress, price to include power connection and all necessary fittings, fixings, accessories complete as shown on drawing , as per specification, and Engineer approval</b></p>					
B	Electric water pump 0.50 hp, Easypress	1	no.		
Carried to Collection (JD)					

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>ELECTRICAL WORKS</b>				
	<b>Supply and install Distribution panel, Schneider or ABB, price to include wires, cables from CABLECO company, relays, timers, instruments, transformers, busbars, neutral and earthing bars, switches, transducers, shut down contactors, indicators, etc., support frame, all complete as shown on drawings and Engineer approval as shown on drawings, as specified and Engineer approval.</b>				
A	DBG	1	no.		
B	DBF	1	no.		
	<b>Supply and install Socket outlets (MK) type price to include all necessary covers, wires, boxes, fittings and accessories complete , as shown on drawings as per specifications and Engineer approval.</b>				
C	1 Gang, 3-Pole, 13A switched socket outlet	22	no.		
D	3-Pole, 13A switched socket outlet	1	no.		
E	Access card control	3	no.		
F	3- compartment floor box with 13A single (socket and data) outlet	38	no.		
	<b>Supply and install Telephone /data socket outlet price to include all necessary accessories, covers, fixings, fittings, complete as shown on drawings and Engineer approval</b>				
G	WIFI modem	2	no.		
H	Ceiling mounted surveillance camera, IP-camera 8	2	no.		
I	Wall mounted outdoor surveillance camera, IP-camera	9	no.		
J	Data points in floor boxes	8	no.		
	<b>Carried to Collection (JD)</b>				

## HEART OF AMMAN PROJECT

## RAS ALAIN SOCIAL INCUBATION OFFICES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b>ELECTRICAL WORKS CONT'D</b>				
	<b>Lighting points price to include all necessary conduits, conductors, cables, wires, junction and pull boxes, connections, accessories, and fittings complete as shown on drawings and Engineer approval</b>				
A	Lighting points , generally	64	no.		
	<b><u>LIGHTING FIXTURES</u></b>				
	<b>Supply and install Lighting fixtures price to include all necessary LED drivers, suspension system, supports, clamps, fixings, fittings and accessories, complete as shown on drawings and Engineer approval</b>				
B	European led light, size (60x60)cm (18W)	26	no.		
C	European led light, size (12x12)cm (14W)	12	no.		
D	White trimless led spot light, size (10x10)cm	18	no.		
E	Outdoor wall mounted led light, 1.2m height	8	no.		
	<b>Carried to Collection (JD)</b>				

HEART OF AMMAN PROJECT

**RAS ALAIN SOCIAL INCUBATION OFFICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	<b><u>COLLECTION</u></b>				
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	<b>General Summary</b>				