

## Scope of Work

### Rehabilitation of buildings B2 and B3 in the new HNEC office, Tripoli, Libya

#### Location: Tripoli, Libya

Provide all materials and transport to site, construct/erect all structures as per attached Drawings, Bill of Quantities and Specifications. Structures are described briefly below:

#### LOCATION OF THE NEW OFFICE

The compound is located on the eastern side of Diplomatic Police HQ, surrounded by a public school from north, Al Hadbah A Sharkiyah road from the east and a small street leading to DP HQ on the southern side.

The compound is composed of three buildings which are either non-completed or vandalized or neglected.

#### CONDITION OF THE COMPOUND

The premises and the three building need civil work which will upgrade the whole compound to be secured and usable by HNEC staff.

The three floor buildings B2&B3 are structural skeleton in a good condition, however other structures such as separation walls, ceiling roof, utilities installations (electricity, water and sewage), doors and windows, stairs and railings, and often the floor and wall tiling got bad under harsh weather and dust and often vandalized, and equipment or materials got stolen (such as copper, pipes etc.). Apart of the concrete structure, all the components of B2 and B3 need reconstruction.



The above pictures describe the general conditions of the two buildings.

The present scope of work details the construction activities needed for B2 and B3 before adding them to B1 which is being rehabilitated by a contractor directly hired by HNEC.

### **ITEM DESCRIPTION OF REQUIRED TASKS (SOW) FOR BUILDING 2&3 HNEC**

The list of activities below are based on a site visit by the Engineers from UNDP and HNEC and based on the sizes of the two buildings (exterior and interior) extracted from the drawings which are attached. The rehabilitation of the two Buildings B2 & B3 is divided in 11 main items:

1. Concrete work: casting concrete in many locations around the two buildings and on top of the roof parapets as to get it ready for the waterproofing.
2. Masonry in blocks: Where needed and where actual walls are removed and replaced.
3. Plastering work: This work concerns the new walls and also old walls where plastering was removed by weather or other external factors
4. Tiling and marble work: This concerns part of the floor where tiles are cracked or broken, new separations in bathrooms and kitchen
5. Painting works: This general and will be applied to the interior and exterior of the two buildings
6. Doors, windows and metal works: All the doors and windows are to be replaced in wood, UPVC or Metallic as stipulated in the BoQ.
7. Insulation works:
8. Plumbing and Sanitary works: The work consists of restoration of the whole water and sanitation system which is totally broken and almost all the pipes were removed
9. Air-conditioning works: Nothing does exist within the two building. So new AC system us required for the two buildings.
10. Electric installation: Apart of the old boxes incorporated in the old walls, nothing is seen in the two buildings. New installation is required and hooked to the existing network
11. Communication and networking: Similarly, the outlets to connect the networking system including the surveillance cameras are inexistent. Thus, a completely new installation is required in the two buildings.

The present scope of work will be translated in a Bill of Quantities is drawn and compile the estimated quantities of work for each construction line. The quantities are just estimation and the actual figure could vary 15% more or less.

### **LIST OF ACTIVITIES**

<b>No</b>	<b>Item/description</b>
<b>1</b>	<b>Concrete Works</b>
1.1	Supply and cast smooth finished slopped concrete screed (of mix 0.8 m <sup>3</sup> gravel, 0.4 m <sup>3</sup> sand, and 250 Kg cement). The screed shall be slopped at minimum 1% and the thickness shall be minimum 5 cm at the water drains. The work shall also include cement fillet (triangles) at roof parapets, complete ready for installation of the waterproofing membrane; all in accordance specifications, drawings and the instructions of the Engineer.
<b>2</b>	<b>Block Works</b>
2.1	Supply & build hollow concrete blocks size 40x20x20cm, built with cement sand mortar (1:4) mix according to technical specification and the instructions of Engineer.
<b>3</b>	<b>Plastering Works</b>
3.1	Repair narrow cracks in existing plastering. 10 cm wide plaster shall be removed around the crack and shall be repaired by plaster with cement sand mortar (1:3) mix according to technical specification and the instructions of Engineer.
3.2	Repair wide cracks in existing plastering. 15 cm wide plaster shall be removed around the crack and shall be repaired by plaster with cement sand mortar (1:3) mix according to technical specifications and the instructions of Engineer.

3.3	Supply and make internal plastering 25 mm thick for walls and ceiling with cement sand mortar (1:3) mix made of 440 Kg cement + 1 M3 sand. The work includes rough 15 mm primer rendering, finishing coat 10 mm and metal mesh at concrete block work joints, edges and openings, according to technical specifications and the instructions of Engineer.
3.4	Supply and make external plastering 25 mm thick. The work includes rough 15 mm primer rendering with cement sand mortar (1:3) mix and metal mesh at concrete block work joints, edges and openings, finishing 10 mm coat with 350 Kg cement+ 580 Kg limestone powder + 1170 Kg sand mix, and Tyrolean finish of required colours, according to technical specifications and the instructions of Engineer.
3.5	Repair damaged plaster around door and window frames with cement sand mortar (1:3) mix made of 440 Kg cement + 1 M3 sand, according to technical specification and the instructions of Engineer.
<b>4</b>	<b>Tiling and Marble Works</b>
4.1	Supply and install none slipping ceramic (grade A) size 330mm x 330mm x 8mm thick for toilet floors, similar to the existing, laid on 30mm mortar bed, including all required works according to technical specifications and the instructions of Engineer.
4.2	Supply and install white glazed wall tiles (grade A) size 200mm X 200mm X 4mm, similar to the existing, laid on 20mm mortar (1:3), including all required works.
4.3	Supply and install terrazzo floor tiles (grade A) size 300mm x 300mm x 30mm with basalt stone of medium size, similar to the existing, laid on 30mm mortar bed and 5 cm thick sand bed, including all required works, according to technical specifications and the instructions of Engineer.
4.4	Supply and install porcelain tiles for floor, of approved material, size, colour and finish, laid on 30mm mortar bed, including skirting and all required works according to technical specifications and the instructions of Engineer.
4.5	Supply and install white Carrara marble size 300 mm wide x 20 mm thick for windows framing, laid on 20mm thick mortar bed. The price including skirting 20mm thick on the both sides and removal of damaged marble, including all required works, according to technical specifications and the instructions of Engineer.
4.6	Supply and install marble stair treads size 320 mm wide x 30mm thick with chamfered edges and risers' size 150 mm high x 20mm thick, similar to the existing, laid on 20mm thick mortar bed. The price including skirting 20mm thick on the both sides and removal of damaged marble, including all required works, according to technical specifications and the instructions of Engineer.
4.7	Supply and install wall skirting made of white marble (grade A), similar to the existing, 10mm thick and 100mm height, including all required works, according to technical specifications and the instructions of Engineer.
4.8	Supply and install cement tiles for roofs, size 200mm X 200mm X 20mm, similar to the existing tiles. The price shall include cement sand mortars bellow tiles, cement sand filling, skirting (the skirting will not be measured and paid separately) sloping toward rain gutters; all according to technical specifications and the instructions of Engineer.
<b>5</b>	<b>Painting Works</b>
5.1	Internal painting for internal walls and ceiling one under coat primer and min. 2-coats of emulsion paint with all required works, according to technical specifications and the instructions of Engineer.
5.2	Internal painting for internal walls, one under coat primer and min. 2-coats of oil paint with all required works. The work shall also include supply and application of one coat of putty with rubbing, according to technical specifications and the instructions of Engineer.
5.3	Painting of existing metal works (both sided, edges and frame), one under coat primer and min. 2-coats of oil paint for doors, and windows, including rubbing off old paints with all required works. The rate should be paid for overall one plain face of the works, according to technical specifications and the instructions of Engineer.
<b>6</b>	<b>Doors, Windows and Metals Works</b>
6.1	Supply and fix interior solid wooden doors, 50 mm thick with frame, with engrooved panels, mullions, stiles and rails from Swedish wood grade 1, including door lock with handle, approved paints, and removal of damaged doors and all required works, according to technical specifications and the instructions of

	Engineer.
6.2	Supply and fix interior UPVC doors, with frame, constructed of approved profiles and UPVC boards, including door lock, all iron monger and hardware, and all required works.
6.3	Supply and fix exterior steel door, with frame, constructed of 2 panels made of 2 mm double galvanized steel plates, including door lock, all iron monger and hardware, painting with approved paints, as directed by Engineer, according to technical specifications and the instructions of Engineer.
6.4	Supply and fix UPVC windows, fixed and openable, constructed of approved profiles and 5mm glass with a clear visibility of 70% and blast resistance film comply with EN 1063 level BR6 or NIJ 0108.01 level III standards, including handle, all iron monger and hardware, and all required works, according to technical specifications and the instructions of Engineer.
6.5	Supply and fix steel protection grill for windows, made of approved sections, including all iron monger and hardware, painting with approved paints, according to technical specifications and the instructions of Engineer.
6.6	Supply and install 600 X 600mm suspended ceiling. The price should include galvanized suspension system with anchors to the structure, bacterial resistant, moisture resistant, with standing relative humidity up to 95% at 30c fire resistant tiles, including access panels, fittings, fixing, and all required works, according to technical specifications and the instructions of Engineer.
6.7	Supply and fix stairs balusters made of approved smooth finish aluminium profiles, of 600 mm height, including handrails, all iron monger, hardware and all required works according to specifications and Engineer instructions.
6.8	Supply and fix emergency stairs made of approved steel sections, 800mm width, with side protection rails of 600 mm height, including connections to emergency exits, ground and wall supporting, iron congeries, hardware and all required works according to technical specifications and the instructions of Engineer.
<b>7</b>	<b>Insulation Works</b>
7.1	Supply and fix aluminum cover strips of 150 mm width for expansion joints, including all required works, according to technical specifications and the instructions of Engineer.
7.2	Supply, install and test single layer bituminous sheet 4mm thick for bath rooms floor insulation, lay with 75mm side laps and 100mm end laps, raised 200mm at floor edges and comply with ASTM D751 as directed by Engineer, according to technical specifications and the instructions of Engineer.
<b>8</b>	<b>Plumbing and Sanitary Works</b>
8.1	Supply and install Poly Propylene (PPR) pipes 1/2", for potable water network. The work includes all tees, bends, and all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.2	Ditto, but 3/4" pipes.
8.3	Ditto, but 1" pipes.
8.4	Ditto, but 2" pipes, for firefighting system.
8.5	Supply and install UPVC pipes 1 1/2", for waste water network. The work includes all tees, bends, and all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.6	Supply and install UPVC pipes 4" and 10 bar pressure, for waste water drainage. The work includes all tees, bends, and all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.7	Supply and fix white glazed fireclay European W.C. suite made of vitreous china to BS 3402 (grade A), complete with 10-liter double action flushing ceramic cistern, and fixed chromium plated tap 1/2", including all water supply pipes 16mm, angle valves, UPVC drainage pipe connecting to the nearest manhole or sewage header and all related work accessories and fittings, according to technical specifications and the instructions of Engineer.

8.8	Supply and fix white glazed fire clay standing hand wash basin with overflow and single hole faucet, size 480 x 580 mm, made of vitreous china to BS 3402 (grade A), complete with all water supply pipes 16mm, chromium plated mixer and waste trap. The work includes all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.9	Supply & fix porcelain kitchen sink with two bowls, overall size 1200 X 500 mm, made of vitreous china to BS 3402 (grade A), complete with all water supply pipes 16mm, swan neck chrome plated mixer and waste trap. The work includes all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.10	Supply and fix PPR valves of different sizes and remove old ones, including all required works, according to technical specifications and the instructions of Engineer.
8.11	Supply and fix electrical water heater, 80 liters capacity, 0.8 Mpa pressure, provided with temperature gauges, including water supply pipes 16mm, chromium plated control valve, non-return valve and all required works, according to technical specifications and the instructions of Engineer.
8.12	Supply and install floor waste trap, size 150 X 150 mm, including chromium plated cover and all required works, according to technical specifications and the instructions of Engineer.
8.13	Supply and fix chromium plated water tap 1/2" diameter, including removal of old ones and all required works, according to technical specifications and the instructions of Engineer.
8.14	Supply and install UPVC pipes 4" and 10 bar pressure, for rain water drainage. The work includes all tees, bends, and all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.15	Supply and install UPVC gutter of 4" diameter for rain water drainage. The work includes all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.16	Ditto for external underground waste drainage. The work includes trench excavation, backfilling, leveling to slope, connecting to existing manholes and all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.17	Supply and build an inspection chamber of concrete (C25), (450*600 mm internal) and depth to invert not exceeding 1 meter, the item includes excavation, concrete, backfilling, and heavy-duty cover and frame complete, chamber wall and bottom is 150mm thick all according to technical specifications and the instructions of Engineer.
8.18	Supply and fix fire hose reel with swinging arm, size 600 X 600 mm, 250 mm depth, and a high-pressure same-rigid hose of 1" dia. and 30 m length, complete with brass chrome plated rotary nozzle, comply with BSEN 694:2014, including all required works, according to technical specifications and the instructions of Engineer.
8.19	Supply and install PVC tank for potable water, of 2000 liters capacity, including the electrical floating valve and all related work accessories and fittings according to the specifications, and Engineer instructions, according to technical specifications and the instructions of Engineer.
8.20	Supply and fix 5.5' and 1 HP horizontal centrifugal pump, one flange and 50 HZ motor, installed on potable water main to supply the water tank. The work includes all related work accessories and fittings, according to technical specifications and the instructions of Engineer.
8.21	Careful cleaning of blocked rain water gutters, waste water pipes and sewage manholes, according to the specifications, and Engineer instructions, according to technical specifications and the instructions of Engineer.
<b>9</b>	<b>Air-Conditioning Works</b>
9.1	Supply, install and maintain wall mounted inverter split air-conditioners. The price shall include one-year Warranty, wiring, electrical connections, drain pipes to the nearest drain points, water proof on-off switch on the external units, galvanized steel holders/stands, opening in walls by scoring machine, closing holes with sika sealant, gas and oil charging. The units shall be according to below specifications and the applicable Standards, and as per the following specifications and the instructions of the engineer: Capacity-12 000 BTU, Pre-charged with Eco. Friendly R 410A, Washable screen anti-bacterial filtration, Low Ambient Heating Temp, Power supply source-V/Ph/Hz-208-230V-1-60 Hz, Air flow volume-m <sup>3</sup> /h-840, Noise level in door d/B-47, Noise level out door d/B- 53, Ai circulation-(H/M/L) -m <sup>3</sup> /h 850/680/540,



	Digital, Multi-function LCD Remote Control.
<b>10</b>	<b>Electrical Works</b>
10.1	Supply and install connect and commission, flexible electrical wires of 750 V grade and comply with BS 6500 Table 12, insulated with PVC of 10 mm <sup>2</sup> size, according to technical specifications and the instructions of Engineer.
10.2	Ditto, but 6 mm <sup>2</sup> size.
10.3	Ditto, but 4 mm <sup>2</sup> size.
10.4	Ditto, but 2.5 mm <sup>2</sup> size.
10.5	Supply and install single pole 16 A, 220V, lighting switch, the work includes removal of old ones and all required works, according to technical specifications and the instructions of Engineer.
10.6	Ditto, but double pole 16 A, 220V, lighting switch.
10.7	Supply and install single pole 16 A, 220V, socket outlet. The work includes the earthing cable and removal of old ones and all required works, according to technical specifications and the instructions of Engineer.
10.8	Ditto, but double pole 16 A, 220V, socket outlet.
10.9	Supply and install fluorescent lighting fixture 2 X 40 watt with plastic cover, including 120 cm day light lamps, 3 X 1.5 mm <sup>2</sup> wires, conduits, chock coils, starters, capacitors, clamps, bolts, and all needed accessories, according to technical specifications and the instructions of Engineer.
10.10	Ditto, but 4 X 20 watt, for suspended ceiling with reflective base.
10.11	Ditto, but 2 X 20-watt water proof type IP 65, for toilets.
10.12	Supplying and fix external spotlight with 1000-watt halogen lamp. The work includes the required electrical connections and all related work and accessories, according to technical specifications and the instructions of Engineer.
10.13	Supply and fix main distribution boards comply with BS 5486: Part 1 (IEC 60439-1 Form 4), fabricated from sheet steel having a minimum thickness of 1.5 mm. The steel shall be electro zinc plated, (Zintec), with 100 A main 4 poles switch, 16 air circuit breakers, wiring, and all needed accessories, according to technical specifications and the instructions of Engineer.
10.14	Supply and fix sub-main distribution boards comply with BS 5486: Part 1 (IEC 60439-1 Form 4), fabricated from sheet steel having a minimum thickness of 1.5 mm. The steel shall be electro zinc plated, (Zintec), with 63 A main 2 poles switch, 12 air circuit breakers, wiring, and all needed accessories, according to technical specifications and the instructions of Engineer.
10.15	Supply and install smoke detector designed for commercial applications, stand-alone style, ionization chamber technology, control panel type, work on 240 AC voltage. With adjustable sensitivity level and wireless communicating with an alarm system features, including all needed accessories, according to technical specifications and the instructions of Engineer.
10.16	Supply and fix fire alarm control panel, supports 120 devices, graded levels of sensitivity, fully field programmable with 80-character display, comply with ISO 9001: 2000 or ISO 9001: 2008, work on 240 AC voltage, including all needed accessories, according to technical specifications and the instructions of Engineer.

Note: The list of activities above is compiled in a BoQ where the estimated quantities are given as indication and should be double-checked by selected contractor and the site engineer before starting the work. The quantities are calculated based on in-situ observation and measurement.