INVITATION TO BID (ITB/CT/03/2021)

Date: 10 February 2021

Subject: Structural and Architectural Works at UNRWA Headquarters, Amman.

1. The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) hereby invites you to submit a bid to this Invitation to Bid (ITB) for the above subject. Bids are required to be received by UNRWA no later than Wednesday 3rd March 2021 at 1:00 PM (Amman Time) (the Closing Time).

2. This ITB consists of this letter, the subsequent instructions and the following annexes:
   - Annex A: General Tender Instructions
   - Annex B: Acknowledgement Letter
   - Annex C: Statement of work – Technical instructions
   - Annex D: Drawing
   - Annex F: Evaluation Methodology
   - Annex G: Financial Evaluation including pricing the bills of Quantities
   - Annex H: Performance Bond
   - Annex I: Draft Contract with CQP
   - Annex J: UNRWA General Conditions of Contract
   - Annex K: Instructions for UNGM Registration and Bid Submission
   - Annex L: Instruction on Mandatory on Site Visit

3. You are kindly requested to return the attached Annex B- Acknowledgement Letter, duly signed by an authorized representative of your company via email cssd@unrwa.org. The letter should advise whether your company intends to submit a Bid and if not, indicate the reason.

4. For clarifications regarding this ITB, please contact in writing the Procurement Section of the Central Support Services Division, UNRWA Headquarters Amman through e-mail to cssd@unrwa.org no later than Thursday, 18 February 2021 at 1:00 PM (Amman Time), please indicate the ITB reference number in the subject line.

5. We look forward to your Bid and thank you in advance for your interest in UNRWA procurement opportunities.

Yann Kervinio
Chief, Central Support Services Division

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ANNEX A: GENERAL INSTRUCTIONS

GENERAL

1. UNRWA solicits Bids in response to this ITB. Bidders must strictly adhere to all the requirements of this ITB. No changes, substitutions or other alterations to the provisions stipulated in this ITB will be accepted unless approved in writing by UNRWA.

2. Submission of a Bid shall be deemed to constitute an acknowledgement by the Bidder that all obligations stipulated by this ITB will be met and unless specified otherwise, the Bidder has read, understood and agreed to all the instructions provided in this ITB.

3. This ITB does not commit UNRWA to award a Contract or to issue a Purchase Order. Any Bid submitted will be regarded as a Bid by the Bidder and not as an acceptance by the Bidder of any Bid by UNRWA.

4. The Bidder shall bear any and all costs and expenses related to the preparation and/or submission of the Bid, regardless of whether its Bid was selected or not.

5. Unless otherwise stated in this ITB, all times indicated in this ITB are Amman time.

BID SUBMISSION

6. Bidders are required to complete, sign and submit in the English language, the following documents via UNGM (In-Tend):
   a. Technical offer
   b. Commercial Offer

7. UNRWA will for this bid accept Bids submitted via its e-tendering system (In-TEND) by visiting the web address www.ungm.org. Submission of Offers by any other means (by hand /courier/email) may not be accepted.

   !!!!! Please note that submissions by Hand/courier, fax, or email may not be accepted. !!!!!

8. The Bids shall include information in sufficient scope and detail to allow the UNRWA to consider whether your company has the necessary capability, experience, knowledge, expertise, licenses, financial strength and the required capacity to perform the work specified at a high professional level, as well as any attachments and/or appendices required hereunder.

9. UNRWA will for this bid accept Bids submitted via its e-tendering system (In-TEND) as well as Bids submitted by Hand/Courier.

BILLS OF QUANTITIES

10. For submission through In-TEND, Vendors shall use the provided automated excel template of the bills of Quantities to submit their price offer. Vendors must only input their Unit prices in excel cell called “Unit Prices” of the Bills of quantities, which will result in an automated calculation of the total offer under the Summary Page. Vendors must also indicate the currency of their offer as US Dollars. Any change to the provided excel format may lead to the disqualification of vendor's offer. Once completed, vendors are requested to submit their price proposal in excel format as well as in PDF format with signature and stamp. Submission of the excel format is mandatory.

11. UNRWA does not assume any responsibility for any missing and/or illegible pages of Bid, and this may result in rejection of your Bid. Only submissions submitted as indicated herein can be accepted. Submissions by any other means, or to any other address, will be rejected. Vendors who submit (a copy of) the Bid directly to the Procurement Officer (by fax, email or by any other means not described above) will be disqualified.
**BID BOND**

12. Bidders MUST furnish, at their own cost, a bid security / bid Bond provided by the bidder’s bank herein as “Bid Bond. The Bid Bond shall be in a sum of 5% of the total value of the bid and valid for duration of 120 days after the closing date of the tender. The Bid Bond will be returned to unsuccessful vendors once the contract resulting from has been awarded. The Bid Bond will be returned to the successful bidder once the contract is signed and the performance bond submitted to UNRWA. The original version of the bid security should be submitted at UNRWA Head Quarters (Amman) as per the instructions below.

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**Bid Bond For Tender:** ITB/CT/03/2021- Structural and Architectural Works at UNRWA Headquarters, Amman.

**United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)**

Attn. Chairperson, Tender Opening Committee

UNRWA Headquarters (Amman), Bayader Wadi Seer, Industrial Street, Building # : 136

P.O. Box 140157, Amman 11814 JORDAN

Attn: Tender Opening Committee, Mail Room Office # D110

**ONLY TO BE OPENED BY AUTHORIZED UNRWA PERSONNEL OF THE TENDER OPENING COMMITTEE**

Closing Date & Time: no later than (Wednesday 3rd March 2021 at 1:00 PM)

Name of the Bidder: …………………………………..

!!!!!! This instruction is only for submission of Bid Bond and not a Bid!!!!!

**REQUEST FOR CLARIFICATIONS**

13. For clarifications regarding this ITB, please contact in writing the Procurement Section of the Central Support Services Division, UNRWA Headquarters Amman through e-mail to cssd@unrwa.org no later than Thursday, 18 February 2021 at 1:00 PM (Amman Time). Please indicate the ITB reference number in the subject line. Alternatively, clarifications exclusively in writing, via the Correspondence tab in the e-tendering module can be sent no later than Thursday, 18 February 2021 at 1:00 PM (Amman Time) at 1:00 PM (Amman Time). No communication, written or verbal, is allowed in connection with this ITB, with any UNRWA staff members other than the Procurement Officers. Queries received after the above deadline may not be considered.

14. In order to maintain transparency, all Bidders’ requests for clarifications and UNRWA responses will be recorded and circulated to all Bidders, without indicating the source of the request.

**BID VALIDITY**

15. Your Bid shall be irrevocable and remain valid for acceptance for at least a 120 days period, commencing on the Closing Time.

16. Additional period(s), in order to finalize the solicitation process. If the extension of the validity period is accepted by a Bidder, the Bidder will not be permitted to otherwise modify or consequently withdraw its Bid.

17. Bids shall be valid for at least the minimum number of days specified in the Invitation to Bid from the Closing date. In the event that a supplier is in a position to extend the validity of his Bid for a limited period beyond the required minimum, this should be stated on the Bid Form. UNRWA reserves the right to determine, at its sole discretion, the validity period in respect of Bids which do not specify any such maximum or minimum limitation.

**SOLICITATION DOCUMENTS**

18. Bidders are expected to examine all instructions, forms, specifications, terms and conditions, shipping instructions, special conditions contained within this solicitation document (the solicitation documents including the cover letter with all annexes are to be signed and stamped by the bidders). Failure to comply with these documents shall be at the bidder’s risk and may affect the evaluation of the bids, or may result in the rejection of the bid.
PAYMENT TERMS

19. The standard UNRWA terms of payment are 30 calendar days following satisfactory delivery of goods, performance of services and submission of an invoice, whichever is later. Payment for any goods or services by UNRWA shall not be deemed an acceptance of the goods or services. The provisions of Incoterms 2010 shall apply to any delivery terms specified in this ITB.

20. UNRWA's policy is to preclude advance payments or payment by Letters of Credit. Such provisions in a Bid will be prejudicial to its evaluation by UNRWA.

CURRENCY

21. Prices must be quoted in USD Dollars. No other currencies will be accepted for this tender and the bids that will be quoted in other currencies will be rejected.

22. The Contract/Purchase Order awarded to the selected Bidder, Bidder's invoices and UNRWA payments, will be made in the currency as originally quoted by the Bidder in its Financial Bid.

PRICE

23. The offered price should be all inclusive. If Bidders' price excludes certain fees and/or charges, bidders must provide a detailed list of excluded fees, with a complete explanation of the nature of those fees. Unless otherwise provided in this ITB, the contract shall be concluded on a Firm Fixed Price basis, and shall not be subject to any adjustment, including the actual cost incurred by the Bidder in performing the contract or any market price change.

PERFORMANCE BOND

24. Performance Bond (Bank Guarantee): The successful bidder shall, at its own cost and expense, furnish to UNRWA a performance bond in the form included in this ITB (Annex H), in a sum not less than 10% of the contract price. The Performance Bond shall be valid for the entire period of the contract plus 40 days. The performance bond shall be renewed on the same terms and conditions for further periods of time corresponding to the duration of each renewal of the Contract, plus 40 days the acceptance of submission of the Performance Bond is a mandatory requirement.

LIQUIDATED DAMAGES.

25. If the Bidder fails to complete the contract within the lead time to be stipulated in the contract for any reason other than UNRWA's act or omission, UNRWA shall deduct as a liquidated damages, a sum of 700$ for each business day of delay until actual completion, up to a maximum deduction of 10% of the total contract value; all without prejudices to any other remedies available to the UNRWA. A maximum grace period of 7 (seven) business days may be permitted. However, if the works are not completed within the grace-period, liquidated damages will apply from the day immediately following the required completion date Said amount is agreed to be a reasonable estimation of the damages which UNRWA will sustain, without having required proving the actual damage.

WITHDRAWAL AND MODIFICATION OF BID

26. Bids may be modified or withdrawn at any time prior to the Closing Time. Modification and/or any other complementary information can be made in the system before the Closing Time.

27. Bid may not be modified or withdrawn after the Closing Time. If a Bid is modified or withdrawn by the Bidder after the Closing Time, UNRWA shall be entitled, without prejudices to any other remedies available to UNRWA, to draw on the Bid Security, if requested in this ITB. In addition, the Bidder's registration status as a UN vendor may be subject to review by the UN Vendor Review Committee and may be grounds to suspend or remove the Bidder from the UNRWA vendor roster.

REJECTION OF BID

28. UNRWA reserves the right to reject a Bid if it does not adhere to the ITB instructions.

SELECTION PROCESS

29. UNRWA reserves the right, at its sole discretion, to:
29.1 Award separate or multiple contracts for same or different elements covered by this ITB in any combination it may deem appropriate, or only a portion of the requirements. If the Bid is submitted on an "all or none" basis, it should be clearly stated as such.

29.2 Reject any or all Bids received in response to this ITB and negotiate with any of the Bidders in any manner deemed to be in the best interest of UNRWA.

29.3 Add new considerations, information or requirements at any stage of the process.

30. In exceptional situations, UNRWA may cancel this ITB by a written notification to Bidders.

**CONTRACT AWARD PUBLICATION.**

31. UNRWA shall publish the contract award on UNRWA website:

https://www.unrwa.org/procurement/tenders

**SIGNING THE CONTRACT**

32. UNRWA shall send to the successful bidder the contract which constitutes the notification of award. The successful bidder shall sign, date the Contract and return it to UNRWA within maximum 07 days of receipt of the Purchase Order.

33. This ITB is subject to the UNRWA General Conditions of Contract (GCC). By submitting a Bid, the Bidder confirms that it has accessed, read, understood, agreed and accepted UNRWA’s GCC.

34. As long as it makes economic sense, **UNRWA reserves the right to award one Contract or multiple contracts, covered by this ITB in any combination that UNRWA deems appropriate.**

35. This ITB does not commit UNRWA to award a contract or to pay any costs incurred in the preparation or submission of Bids or costs incurred in making necessary studies for the preparation thereof, or to procure or contract for services or goods. Any Bid submitted will be regarded as an offer made by the Bidder and not as an acceptance by the Bidder of an offer made by UNRWA. No contractual relationship will exist except pursuant to a written contract document signed a duly authorized official of UNRWA and by the successful Bidder.

**UNGM VENDORS REGISTRATION**


**SUPPLIER CODE OF CONDUCT**

37. By submitting a Bid, the Bidder confirms that it has accessed, read, understood and agrees to comply with the UN Supplier Code of Conduct, which, amongst others, prohibits collusive bidding, anti-competitive conduct, improper assistance and corrupt practices. Bidders should refer to the UN Supplier Code of Conduct at:


**COLLUSIVE BIDDING AND ANTI-COMPETITIVE CONDUCT**

38. Bidders and their employees, officers, advisers, agent or subcontractors must not engage in any collusive bidding or other anti-competitive conduct, or any other similar conduct, in relation to:

- The preparation or submission of Bids,
- The clarification of Bids, and
- The conduct and content of negotiations, including final contract negotiations, in respect of this ITB or procurement process, or any other procurement process being conducted by UNRWA in respect of any of its requirements.

For the purpose of this clause, collusive bidding, other anti-competitive conduct, or any other similar conduct may include, among other things, the disclosure to, exchange or clarification with, any other Bidder,
person or entity, of information (in any form), whether or not such information is commercial information confidential to UNRWA, any other Bidder, person or entity in order to alter the results of a solicitation exercise in such a way that would lead to an outcome other than that which would have been obtained through a competitive process.

In addition to any other remedies available to it, UNRWA may, at its sole discretion, immediately reject any bid submitted by a Bidder that, in UNRWA’s sole opinion, has engaged in any collusive bidding, other anti-competitive conduct, or any other similar conduct with any other Bidder, person or entity in relation to the preparation or lodgment of bids, whether in respect of this ITB or procurement process, or any other procurement process being conducted by UNRWA in respect of any of its requirements.

IMPROPER ASSISTANCE

39. Bids that, in the sole opinion of UNRWA, have been compiled:

- with the assistance of current or former employees of UNRWA, or current or former contractors of UNRWA in violation of confidentiality obligations or by using information not otherwise available to the general public or which would provide a non-competitive benefit,
- with the utilization of confidential and/or internal UNRWA information not made available to the public or to the other Bidders,
- in breach of an obligation of confidentiality to UNRWA, or
- contrary to these terms and conditions for submission of a bid,

Shall be excluded from further consideration.

40. Without limiting the operation of the above clause, a Bidder must not, in the absence of prior written approval from UNRWA, permit a person to contribute to, or participate in, any process relating to the preparation of a Bid or the procurement process, if the person:

- at any time during the 6 months immediately preceding the date of issue of this ITB was an official, agent, servant or employee of, or otherwise engaged by, UNRWA,
- at any time during the 12 months immediately preceding the date of issue of this ITB was an employee of UNRWA personally engaged, directly or indirectly, in the planning or performance of the requirement, project or activity to which this ITB relates, or
- At any time, was an employee of UNRWA involved, directly or indirectly, in the preparation of this ITB including any earlier versions or the management of this procurement process

CORRUPT AND FRAUDULENT PRACTICES

41. UNRWA requires that all suppliers observe the highest standard of ethics during procurement and execution of work. Pursuant to this policy, UNRWA defines the terms set forth as follows:

i. Corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in the execution of a contract;

ii. Fraudulent practice means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the client, and includes collusive practice among suppliers (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the client of the benefits of free and open competition.

42. UNRWA will declare a supplier ineligible, either indefinitely or for a stated period of time, to be awarded a UNRWA-financed contract/agreement if at any time it determines that the supplier has engaged in any corrupt or fraudulent practices in competing for, or in executing a UNRWA-financed contract/agreement.

UNETHICAL BEHAVIOUR

43. UNRWA strictly enforces a policy of zero tolerance concerning unethical, unprofessional or fraudulent acts of UNRWA suppliers. Accordingly, any registered company that is found to have undertaken unethical,
unprofessional or fraudulent activities, as defined above, will be suspended or forbidden to continue business relations with UNRWA.

**ZERO TOLERANCE POLICY ON GIFTS AND HOSPITALITY**

44. UNRWA has adopted a zero tolerance policy on gifts and hospitality. In view of this, UNRWA personnel is prohibited from accepting any gift, even of a nominal value, including drinks, meals, food products, hospitality, calendars, stationery, transportation, recreational trips to sporting or cultural events, theme parks or offers of holidays, or and any other forms of benefits. The supplier shall not offer any forms of gifts, hospitality or benefits to UNRWA personnel.

45. Bidders may also visit the below mentioned link to obtain more information on UNRWA procurement policy: [https://www.unrwa.org/procurement/policy](https://www.unrwa.org/procurement/policy)

**CONFLICT OF INTEREST**

46. A Bidder must not, and must ensure that its employees, officers, advisers, agents or subcontractors do not, place themselves in a position that may, or does, give rise to an actual, potential or perceived conflict of interest between the interests of UNRWA and the Bidder’s interests during the procurement process.

47. If during any stage of the procurement process or performance of any UNRWA contract a conflict of interest arises, or appears likely to arise, the Bidder must notify UNRWA immediately in writing, setting out all relevant details of the situation, including those cases in which the interests of the Bidder conflict with the interests of UNRWA, or cases in which any UNRWA official, employee or person under contract with UNRWA may have, or appear to have, an interest of any kind in the Bidder’s business or any kind of economic ties with the Bidder. The Bidder must take steps as UNRWA may reasonably require to resolve or otherwise deal with the conflict to the satisfaction of UNRWA.

**GLOBAL COMPACT**

48. UNRWA strongly encourages all vendors to UNRWA to participate in the Global Compact. You can find more under [www.unglobalcompact.org/participation/join/](http://www.unglobalcompact.org/participation/join/).

**LOCAL TAXES**

49. The successful bidder may be subject to local taxes (e.g., value added or sales tax, social charges or income taxes on non-resident foreign personnel, duties, fees, levies, etc.) on amounts payable by UNRWA under the contract with the bidder. The Client will state in the Data Sheet if the Consultant is subject to payment of any local taxes. Any such tax amounts shall not be included in the Financial Proposal as they will not be evaluated, but they will be discussed at contract negotiations, and applicable amounts will be included in the Contract.

All UNRWA imports are exempted from customs and taxes up to zero limits, the contractor will be furnished with an exemption letter (upon request) for all items consumed in the project, noting that the contractors are not exempted from income tax.
IMPORTANT: Bidders are requested to return a completed copy of this acknowledgement letter even if they do not intend to submit a bid for this tender.

SUBJECT: INVITATION TO BID (ITB/CT/03/2021): Structural and Architectural Works at UNRWA Headquarters, Amman.

Dear Madam / Sir,

We the undersigned acknowledge receipt of your ITB/CT/03/2021 for the subject matter and hereby confirm that:

(   ) We intend
(   ) We do not intend

To submit a bid to UNRWA for Structural and Architectural Works at UNRWA Headquarters, Amman by the deadline date of Wednesday 3rd March 2021 at 1:00 PM Amman, Jordan time.

Name & Title of Authorized Representative: ________________________________

Signature: __________________________________________________________

Company Name & Address: ___________________________________________

Telephone No.: _____________________________________________________

If you do not intend to submit a bid to UNRWA, please indicate the reason:

(   ) We do not have the capacity to submit a bid at this time.
(   ) We cannot meet the technical requirements for this ITB.
(   ) We do not think we can make a competitive offer at this time.
(   ) Others: Please specify ___________________________________________

Kindly return this acknowledgement via email to cssd@unrwa.org
ANNEX C - STATEMENT OF WORK – TECHNICAL INSTRUCTIONS

Statement of work – Technical instructions

1. SCOPE OF WORKS

The scope of works is to Construction of Conference Hall in the HQ (A) Buildings including two elevators, concrete works, steel structures, and required concrete works in the external yards. The work concerns all works related to purchase, delivery and installation of material needed to complete the required works and includes: transport and unloading of all necessary equipment and material on sites, all construction works specified in the tender dossier, cleaning up of construction sites upon completion of works, all as per the design, bill of quantities and specifications of the Project.

We emphasize that the work items related to the reinforced concrete include both concrete and reinforcement steel and unit prices should be calculated accordingly.

2. MANDATORY PRE-BID VISIT

he contractor shall visit the proposed site for the works before pricing. The site Visit is mandatory and all vendors interested in participating in this tender are strongly advised to attend the Pre-Bid Visit prior to pricing their offers. It is mandatory that the bidders visit the site prior to submitting their tender and verify the site conditions, source of materials and equipment that would be required in accordance with the this tender document. Please refer to the attached form in Annex L which provides instruction on Site Visit.

NOTE’S:
1. Participation in the Site Visit is mandatory and a pre-requisite for submitting a Bid, i.e. bids will not be accepted from Vendors who do not attend the site Visit on the prescribed days.

2. It is the bidder responsibly to follow the government instructions for the safety precautions (i.e. to wear the mask and gloves during the site visit) and to follow the guidelines on the management of mass gathering while at UNRWA premises indicated in Annex L below.

3. Noting that it is important to ensure that there are no more than 20 people are gathering in the same place, UNRWA has organized the Site Visit for 3 consecutive days and UNRWA will contact the suppliers who provide the agency with the signed confirmation form indicated in (Annex L) to notify them when they should visit the site

4. All visitors will be checked for temperature and respiratory symptoms.

5. During the site visit, all preventive measures must be strictly followed all the time;
   a) Maintain a physical distance of at least 1.5 meters (preferably 2 meters);
   b) Wear a mask in an appropriate manner covering the nose and mouth;
   c) Regular hand sanitization especially when touching anything;
   d) Ensure proper fresh-air ventilation in indoor spaces.

6. Visitors will be required to sign a pledge to inform us if they develop symptoms or are diagnosed with COVID-19 within 48 hours after the visit.

3. ADDENDUM TO SPECIAL CONDITIONS

3.1 All Unit Prices and Total Prices Must Be in US Dollar ($).

3.2 The work items related to the reinforced concrete include both concrete and reinforcement steel and unit prices should be calculated accordingly.

3.3 The Contractor shall be deemed to have inspected the site prior to the submission of his tender and to have satisfied himself as to the nature of ground, the access to the site and all other factors.
affecting the execution and completion of the works and to have allowed for all these factors in preparing his tender.

3.4 The workmanship shall be of the kind and quality described, defined or shown in the contract documents and where the workmanship is not described, defined or shown, it shall be of the highest standard used in the locality wherein the site is situated.

3.5 The contractor undertakes to keep noise and disturbance down to the minimum, keep the site tidy and clean all the time, and execute temporary fence and safety barriers as needed.

3.6 The contractor shall be deemed to have studied the drawings thoroughly, any uncertainties or queries must be raised prior to submitting the bid. No future claim shall be considered unless of an unusual nature.

3.7 All materials and needed shop drawings shall be submitted by the contractor for approval.

3.8 The price of plastering and rendering in the Bill of Quantities must include metal aching, angle beads...etc, and as shown on the drawings.

3.9 The contractor is requested to formwork (shatter) any underground works (foundations, ground beams stub columns, etc...) and as instructed by the Director of the Work.

3.10 Period of contract is (20) twenty weeks, no time extension will be granted to contractor in case the Government of Jordan imposes a lockdown in Fridays and Saturdays.

3.11 Sum of liquidated damages per day 500 US Dollars ($) (Only Five Hundred Dollars Per day).

3.12 The vendors are supposed to provide the bid bond using its bankers. The winning bidder will provide the performance bond in the form and format attached in Annex H. The Maintenance Guarantee will be in the form and format provided by the contractor’s bank. UNRWA will not accept bank drafts and certified cheques.

3.13 Curing of slabs with water shall commence as soon as the concrete has settled, wet sacking or plastic folio with tight joints shall be used to cover the slab as soon as the concrete is workable. This also applies to ready mix concrete being used. Other parts of the structure shall be covered as soon as the form work has been stripped. Wooden formwork shall be soaked with water before the casting of concrete and during the curing period.

3.14 Approved concrete cube tests alone are not proof enough that the completed concrete structure is of high quality. More important is the concrete mix used, the workmanship and the level and intensity of concrete curing. The Agency may extract drilled core samples during the construction and maintenance periods to satisfy itself that the structure meets the standards required. Failure to do so may result in deduction of the contract fee and/or remedy works to be requested from the contractor.

3.15 Contractor shall execute on his own an opening (access to his labors and equipment’s) with a temporary door through existing wall and to close the opening on completion of the work.

3.16 If the description given against the items does not necessarily describe all the works to be performed; the contractor shall refer to the Agency’s specifications for building Maintenance and Medium Building Construction works and adopt this in coordination with site supervisor. A copy is attached in Annex E to this tender and in case of award, it must be signed in conjunction with the contract and the tender document.

3.17 Measurements of quantities must be taken up or down the nearest meter.
3.18 A security deposit / Maintenance Bank Guarantee (valid for one year) in the sum of 5% of the amount of the total executed works must be submitted by contractor to the Agency upon the completion of works (Provisional Acceptance).

3.19 It is the contractor’s responsibility to claim the maintenance guarantee when the period of maintenance indicated in the contract expires. To claim the maintenance guarantee, contractors must submit their request within one year from the expiry date of the “Maintenance Guarantee”.

3.20 The prices quoted must be all inclusive and fixed. The Agency will not reimburse any cost incurred due to fluctuations of the prices on the market. Hence, it is the contractor responsibility to appropriately price its offer.

3.21 The list of basic costs in the Bill Of Quantities must be filled.

3.22 The contractor must assign a qualified Civil Engineer as per Standard Building Contracts / Particular condition (E) / Contractor’s representative (f) / clause 3 page PC/3. The assigned Civil Engineer must be available full time on site and must be approved by Director of Works.

3.23 In case the contractor failed to assign said Civil Engineer, the Agency have the right to deduct $2,000.0 ($ Two thousand) for each month from any sums due to contractor under the contract. Or recovered from the security deposit without any notice.

3.24 The contractor must assign a qualified Foreman as per Standard Building Contracts / Particular condition (E) / Contractor’s representative (f)/ clause 3 page PC/3 to be available full time on site. In case the contractor failed to assign a Foreman Full time as per Standard Building Contracts / Particular condition (E) / Contractor’s representative (f)/ clause 3 page PC/3, the Agency have the right to deduct $1,000.0 ($ One thousand) for each month from any sums due to contractor under the contract. Or recovered from the security deposit without any notice.

3.25 The contractor must assign a qualified Electrical Engineer / part time as per Standard Building Contracts / Particular condition (E) / Contractor’s representative (f) / clause 3 page PC/3, to follow up Electrical workshop drawings, electrical submittal material, electrical work execution, coordinate with contractor representative and site engineer to ensure good execution and other requests needed for Electrical installation. In case contractor failed to assign said Electrical Engineer, the Agency has the right to deduct $100.0 ($ One Hundred) per day when he/she is not made available when needed.

3.26 The contractor must assign a qualified Mechanical Engineer / part time, as per Standard Building Contracts / Particular condition (E) / Contractor’s representative (f) / clause 3 page PC/3, to follow up Mechanical workshop drawings, mechanical submittal material, mechanical work execution, coordinate with contractor representative and site engineer to ensure good execution and other requests needed for mechanical installation. In case contractor failed to assign said Mechanical Engineer, the Agency has the right to deduct $100.0 ($ One Hundred) per day when he/she is not made available when needed.

3.27 The experience of the contractor staff will be as follow:
   - Civil engineer: 5 years’ experience.
   - Foreman: 10 years’ experience.
   - Electrical engineer: 5 years’ experience.
   - Mechanical engineer: 5 years’ experience.

3.28 Emails will be considered as one of the official communication channels.

3.29 The awarded Contractor MUST coordinate closely & follow regulation & rules applied by Greater Amman Municipality (G.A.M.) and other authorities regarding delivery of materials to site, removal
excavation materials, casting contract or movement of equipment, tools, Machinery in and out the site & bear all cost due to apply the regulations & rules.

3.30 The awarded contractor MUST carry out safety barriers, strong, good visible, durable, effective, and to meet & compliant with regulation of health & safety. The safety barriers should meet regulations & rules requirements and also accepted by UNRWA representative on site (Director of Works).

3.31 The working hours will be from 3:30 Pm to 10:30 Pm for all working days (Depend on government's regulation of curfew).

3.32 The awarded contractor MUST submit mobilization plan before signing the contract.

3.33 The bidder MUST submit detailed time frame for the work activities with the financial offer.

3.34 The awarded contractor must provide water tanks and to be filled on his own budget or to install temporary water meter in the nearest water supply line to serve the project activities and the consumed water quantity to be paid individually at the end of the project.

3.35 The awarded contractor MUST provide temporary electrical KWH meter along with temporary main feeder cable with the needed protection devices as per DOW recommendation and to be on the contractor budget to service the project tools and equipment's and the consumed electric power quantity to be paid individually at the end of the project.

3.36 The awarded contractor MUST provide a temporary flood lights along with needed cabling and protection devices as per DOW instruction to serve the project activities and facilitate the works during the dark hours, and to be dismantled at the end of the project.

3.37 The awarded contractor MUST also provide Pre-fabricated Office of minimum 16 m² for DOW and to be provided with the necessary furniture and printers as per standard building contracts / Preliminaries (H) / Clauses 20 & 21, pages P/6 & P/7.

3.38 The awarded contractor MUST submit with tender document Work Plan time frame / schedule (bar chart) for the project using Microsoft software & to submit two hard copies to director of work “UNRWA representative on site”.

3.39 The awarded contractor should coordinate with DOW in a daily basis to avoid any disturbance of HQ working during the project execution.

3.40 Smoking inside HQ compound is forbidden.

3.41 The awarded contractor MUST coordinate with the security department to coordinate the access of the equipment's and his employees.

DOW: Director of Work.

4. ADDENDUM TO SPECIFICATIONS

4.1 The contractor must use Ready Mix Concrete from an approved supplier.

4.2 For minor concrete works such as lintels, jambs, topping, plinths, trough support and parapets for staircase, the Contractor may be allowed to use on site concrete mixes (cast in situ) as approved by Director of Works. Aggregates delivered to site must be stored properly. Mix design must be carried out by the contractor through the approved engineering laboratory.

4.3 Compaction pokers shall have a diameter of 50 mm unless otherwise approved by the Agency representative. At least two concrete compactors are required on site.
4.4 Where mentioned in the Bills of Quantities, “imported granular fill materials” shall mean good quality Base-Coarse or single size aggregate.

4.5 The curing of all concreted elements with water shall commence soon after the initial setting of concrete. Wet sacking or plastic sheeting or curing agents shall be used to cover the concrete members.

4.6 The Agency may request core samples from concreted work during the construction and/or maintenance period to satisfy itself that the structure meets the standard required. Failure to carry out remedial works following such core tests may result in deductions from the contract invoice and/or the contractor being asked to carryout remedial works.

4.7 Cement mortar for all plastering, tiling masonry works MUST be mixed using mixer with can.

5. **ADDENDUM TO BOQ RELATED ITEMS (VERY IMPORTANT IN PRICING)**

5.1 Emulsion paint items must include 2 coats of full putty or more to ensure coverage.

5.2 For emulsion or oil paints and Texture paint, rate to include painting in multi colors.

5.3 For doors of toilets, an additional stainless steel sliding locker (Thumb latch) from inside must be included in the item price.

5.4 Details around the frames of all doors to be as details of toilet doors.

5.5 For concrete pavement for playgrounds and yards items must include using hardener and Helicopter finish.

5.6 Aluminum windows sections to be Heavy Sections with silver color.

5.7 All door and window jambs for metal or timber doors or aluminum windows to be executed as dummy columns, even if indicated on drawings or not, the rate to be included in block walling rates.

5.8 Colors of paints to be computer mix and to the approval of DOW.

5.9 In case there is a water or drainage pipe that is to be covered by porcelain tiles, unglazed ceramic tiles, cement tiles and terrazzo tiles, the size of the sand cement mortar must be adequate to cover the pipes. The cost of extra mortar to be included in the prices for the tiles.

5.10 The contractor will provide the premix key coat of plaster and a 20 cm wide wire mesh to be fixed on all electrical, sewerage and water pipes and all joints in toilets, kitchens, labs etc to ensure that there is enough bonding to receive ceramic tiles. Such additional bonding materials shall be included in unit price of ceramic tiles.

5.11 Any columns within shear walls to be measured as concrete for columns only. Except else stated in BOQ.

5.12 The Contractor to submit shop drawings before starting any activity.

5.13 The Contractor must submit Compliance Sheet for any materials that he used in the Site.

5.14 The Compliance sheet should show the requirements on the drawings, specifications & B.O.Q.
5.15 Upon the request of the Agency, the Contractor should submit method statements if needed for any activity.

5.16 The reinforced concrete in this tender will mean concrete with reinforcement steel and the unit price of reinforced concrete should include concrete and steel accordingly.

5.17 All door frames must be to the full of width of plastered/finished block wall or concrete wall.

5.18 For all timber furniture, plywood thickness to be 22 mm even it stated in drawings to be less.

5.19 Porcelain tiles to be of best quality to the approval of Director of Works (DOW).

5.20 All blocks, or hollow blocks for ribs to be automatic machine made.

5.21 After applying texture paint, the contractor must repaint the textured surface with at least one or several coats of emulsion paint until if fully covers the same. These emulsion coats to be included in the unit price of the textured paint.

5.22 The Contractor to submit As Built Drawings, before final payment.

5.23 All lintels over windows or doors must cast in place not to cast on floor & place it.

5.24 All paints must be (environmentally friendly).

5.25 **The following conditions related to supply and install ACs during construction stage (material’s submittal stage):**

   - The awarded contractor to submit original catalogues & testing certificates from third party (signed & stamped).
   - The awarded contractor to supply AC’s from certified official AC dealer. The AC supplier shall have been an official dealer for supplied brand in the Jordanian market for not less than 5 years. (Awarded contractor to submit supporting documents).
   - The awarded contractor shall provide a minimum of 5 years’ maintenance warranty for indoor unit, outdoor unit and compressor.
   - The awarded contractor shall provide a routine maintenance and check-up for two times during the warranty period upon request.
   - The awarded contractor to submit company profile of staff (Engineers, supervisors & technicians) and services after sales for AC supplier.
   - The successful bidder shall furnish (Maintenance Bank Guarantee) to UNRWA in a sum equal to 5 percent (5%) of the estimated AC cost. The Maintenance Bank Guarantee shall be valid up to (Five Years) after the date of completion of performance obligation.
   - AC specification should be based on the following conditions:
     a. Testing and rating as per EN 14825:2018 / BS EN 14511-3:2018 or equivalent
     b. Cooling: Indoor temperature of 27°CDB/19°CWB, and outdoor temperature of 35°CDB/24°CWB.
     c. Heating: Indoor temperature of 20°CDB/15°CWB, and outdoor temperature of 7°CDB/6°CWB.
     d. Pipe length : 5/7.5 m , Height difference : 0 m. (Outdoor unit - Indoor unit)*
     e. The maximum current is the maximum value when operated within the operation range(temperature)
     f. The maximum current is the total current of indoor unit and outdoor unit.
     g. Frame for supporting outdoor unit shall be heavy duty wall hanged steel or aluminium angle mounting brackets “not less than 4 mm thickness” with anti-rust coating and rubber shock absorber. Or floor mounting concrete pads with rubber shock absorber.
     h. A/C supplier must attend within 48 working hours from reporting the faults to solve any A/C maintenance trouble shooting during warranty period.
i. Readymade Aluminium copper pipe or copper kits are not approved. Copper pipes between indoor and outdoor unit shall be from Mueller - US made or equivalent.

5.26 Submitted AC brand shall comply with following specifications:

- **WALL MOUNTED TYPE AC SPLIT UNIT (INVERTER) 12000 BTU**
  
  a. 1 Ton, nominal capacity not less than 11500 Btu/hr cooling capacity,
  b. Cooling, heating, dry and fan modes
  c. Outdoor operation temperature Cooling (10 ~ 43) °C, Heating (-10 ~ 15) °C
  d. Auto Air Swing UP/Down –Cross
  e. Minimum 3 Fan speeds with silent /quiet mode
  f. Noise level below 48dB for indoor unit
  g. Noise level below 58dB for outdoor unit
  h. Voltage & Frequency Single phase (230-240V ~ 50Hz)
  i. Compressor shall be of low noise, hermetically sealed, high efficiency. Compressor shall be scroll, rotary type.
  j. Refrigerant charge R410A or R32. “R32 is preferred if available”
  k. EU Energy Efficiency rating A++ for cooling & A++ for Heating
  l. Units should have a EER & COP not less than 3.5 for cooling & 3.3 for heating
  m. Wireless remote control with digital display
  n. Height difference allowed between indoor and outdoor not less than 12m

- **WALL MOUNTED TYPE AC SPLIT UNIT (INVERTER) 18000 BTU**
  
  a. (1.5 Ton), nominal capacity not less than 17500 Btu/hr cooling capacity
  b. Cooling, heating, dry and fan modes
  c. Outdoor operation temperature Cooling (10 ~ 43) °C, Heating (-10 ~ 15) °C
  d. Auto Air Swing UP/Down –Cross
  e. Minimum 3 Fan speeds with silent /quiet mode
  f. Noise level below 48dB for indoor unit
  g. Noise level below 58dB for outdoor unit
  h. Voltage & Frequency Single phase (230-240V ~ 50Hz)
  i. Compressor shall be of low noise, hermetically sealed, high efficiency. Compressor shall be scroll, rotary type.
  j. Refrigerant charge R410A or R32. “R32 is preferred if available”
  k. EU Energy Efficiency rating A+ for cooling & A+ for Heating
  l. Units should have a EER & COP not less than 3.3 for cooling & 3.2 for heating
  m. Wireless remote control with digital display
  n. Height difference allowed between indoor and outdoor not less than 12m

- **WALL MOUNTED TYPE AC SPLIT UNIT (INVERTER) 24000 BTU**
  
  a. (2 Ton), nominal capacity not less than 23000 Btu/hr cooling capacity
  b. Cooling, heating, dry and fan modes
  c. Outdoor operation temperature Cooling (10 ~ 43) °C, Heating (-10 ~ 15) °C
  d. Auto Air Swing UP/Down –Cross
  e. Minimum 3 Fan speeds with silent /quiet mode
  f. Noise level below 48dB for indoor unit
  g. Noise level below 58dB for outdoor unit
  h. Voltage & Frequency Single phase (230-240V ~ 50Hz)
  i. Compressor shall be of low noise, hermetically sealed, high efficiency. Compressor shall be scroll, rotary type.
  j. Refrigerant charge R410A or R32. “R32 is preferred if available”
  k. EU Energy Efficiency rating A+ for cooling & A for Heating
  l. Units should have a EER & COP not less than 3.1 for cooling & 3.0 for heating
  m. Wireless remote control with digital display
  n. Height difference allowed between indoor and outdoor not less than 12m

5.27 WALL MOUNTED TYPE AC SPLIT UNIT (INVERTER) Specifications:
• Part 1: QUALITY
  o QUALITY ASSURANCE:
    a. System shall be rated and certified in accordance with an international standard.
    b. Unit shall be constructed in accordance with international standards.

• PART 2 – PRODUCTS:
  o THE PRODUCT:
    a. General units should all be Heat Pumps Class A for cooling and heating operations, Single phase (220-240V ~ 50Hz).
    b. The Units should all be factory-assembled and tested, consists of indoor and outdoor units, each one complete piece, air cooled outdoor unit, designed for roof, slab, floor mounting or wall mounting. Contained within the unit enclosure shall be all factory wiring, piping. Consisting of compressors, fan motor, condensers, evaporator fans, holding charge of R410a or R32 Refrigerant and temperature control, filters and special features required prior to field start up.
    c. Outdoor unit cabinet shall be constructed of galvanized steel; compressor compartment shall be isolated to assure quiet operation.
    d. Condenser fans shall be direct drive Propeller type, and motors shall be totally enclosed.
    e. Compressor shall be Hermetic type, Rotary/Twin Rotary/ Scroll.
    f. Condenser coil shall be constructed of aluminum fins mechanically bonded into internally enhance seamless copper tubes.
    g. Unit operation conditions.

      1) The heating mode operation temperature should be between (-10~24) °C.
      2) The cooling mode operation temperature should be between (10 ~ +43) °C.

    h. Units should have a COP not less than:
      1) 1Ton: 3.5 Cooling / 3.3 Heating
      2) 1.5Ton: 3.3 Cooling / 3.2 Heating
      3) 2Ton: 3.1 Cooling / 3.0 Heating

    i. Operation Sound, low noise by adopting plastic case, Plastic fan and Multi positions airflow volume switch decreases noise to 48dB(A) in the indoor unit.

  o OUTDOOR UNITS:
    a. The outdoor unit should be air cooled split system. Outdoor section shall be suitable for on the ground/roof top installation.
    b. Units shall consist of Hermetic type, 4 Pole, high efficiency Rotary compressor and a high efficiency scroll compressor for the unit with cooling capacity 5KW.
    c. All Units shall consist of air cooled coil, propeller type condenser fan, control box, motor and holding refrigerant charge R410a or R32.
    d. The outdoor heat exchanger should be of aluminum fins mechanically bonded to internally enhance seamless copper tubes.
    e. The Outdoor unit’s weight should not exceed 61 Kg.
    f. The outdoor fan should be driven by motor.

  o INDOOR UNITS:
    a. Unit shall be direct-expansion complete with coil, Heat Pump, Cross Flow fan, motor, piping connectors, electrical controls, and a holding charge of R410a or R32 refrigerant.
    b. Unit should have a Cross Flow fan for uniform distribution.
    c. Coil shall be copper tube with aluminum fins and galvanized steel tube sheets.
    d. Motors shall be permanently lubricated with inherent overload protection.
    g. The weight of the indoor units should not exceed 14 Kg.
CONTROLLERS:
   a. Operation is controlled by a wireless remote controller.
   b. Indoor temperature can be detected accurately by the inclusion of a thermo sensor in the body of the wireless remote controller.
   c. The controller must have a simple operation with Built-In Daily Timer possible to set ON/OFF timer once within a 24 hour period.

ACCESSORIES:
   a. The outdoor units shall be provided with the following features:
      • Service charging valves.
      • Pre-charged outdoor unit.
      • Expansion device, Muffler & two strainers.

SAFETY:
   a. The Indoor Units must have a Circuit protection – Current Fuse (PCB)-and a fan motor thermal protection.
   b. The Indoor Units must have a terminal Protection – Current (Thermal) Fuse.
   c. The Outdoor units must have a Circuit Protection – Current fuse near the terminals and main PCB, Fan motor protection by a thermal protection program, high pressure protection by a pressure switch for units above 5.3KW and compressor thermal protection.

PART 3 – EXECUTIONS

EXAMINATION
   a. Administrative Requirements: Coordination and project conditions.
   b. Verify concrete housekeeping pad is sized and located correctly.
   c. Verify piping rough-in is at correct location.
   d. Verify electrical rough-in is at correct location.

INSTALLATION
   a. Install or in accordance with local codes and international code of practice and standards.
      • Preparing pipes before installation;
      • Cutting the required length.
      • Deburring of the pipe.
      • Brazing according to the following; “whenever needed”
         o Connect one side of the pipe (or pipes) to the Nitrogen tank by using a regulator, valve (on/off) & a non-return valve.
         o At the other side make a reduction for pipe diameter.
         o Open the Nitrogen & keep opened during all brazing process to eliminate oxygen existence inside the pipe in order to ensure the correct brazing.
         o After Brazing blow the Nitrogen, according to correct procedures.
         o Clean all the pipes by using nitrogen gas.
         o Join the suction and liquid lines for pressure test.
         o Pressure test to each unit copper pipes.
         o Pressure up to 610PSI (4.2Mpa) for system using R410a Refrigerant.
         o Pressure test should be 24 hours.
         o Keep the pressure until the indoor units arrive to installation.
         o When installing the indoor prepare the flare then connect (torque wrench must be used)
         o If no leak is found complete the insulation, power line and power point.
         o Connect the pipe after mounting the indoor units.
         o After the last 24 hour pressure test, if there is no leak, begin to vacuum the system, to remove the air and moisture from the system, & to double check for system leakage.
Vacuum pump must be with good & appropriate vacuum capacity.
- Use Vacuum gauge.
- Vacuum first for 5 minutes, and then check result for 5 minutes.
- Next, vacuum for 10 minutes, and then check again for 5 minute.
- Vacuum the system to reach 76cmHg, then to the maximum of 2 hours.

- Vacuum pump must come with reverse flow check valve to prevent back flow in the event of power failure.
- Open the gas valves from the outdoor to allow the refrigerant to go through the network.
- Add refrigerant charge according to the manufacturer requirements & piping length if needed.
- Pipe condensate from drain pan to nearest floor drain.

COPPER PIPES, CONTROL CABLES AND INSULATION:
- Copper pipes between indoor and outdoor units shall be approved by the manufacture and consultant and of size and control cables recommended and approved by the Manufacturer & the consultant.
- Copper Pipes: according to ASTM standards.
- Seamless copper tube according to ASTM B 280 — Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service - is intended for use in the connection, repairs, or alternations of air conditioning or refrigeration units in the field.
- AC/R Copper Tubes is used in the Air Conditioning and Refrigeration Field Service Industry and is designated by the tube's actual OD.
- B 280 tube is produced in straight lengths or coils (Metric Unit).

ELASTOMERIC RUBBER INSULATION:
- Elastomeric Rubber Insulation shall be made of extruded rubber with more than 90% closed cell structure elastomeric.
- Thermal conductivity shall be 0.040 W/mK at 40C according to DIN 52613 -DIN 52612 and BS874 part 2 1986.
- Temperature range shall be from -45C up to 105 C.
- Water vapor diffusion resistance factor shall be 3000 according to DIN 52615 & ISO 9346. Density shall be from 55 to 70 kg/m3.
- Fire resistance shall be class 1 for surface spread of flame according to BS 476 part 7 1987, and class P for ignitability according to BS 476 part 5 1979.
- Noise reduction shall be up to 32 db (A) according to DIN 4109.

MAINTENANCE
- Units should have a removable and washable panel for easy maintenance.
- Units should have a dry operation that removes moisture to keep the conditioner clean.
- Units should have a long life Ion Deodorization Filter that absorbs odors.

MANUFACTURER'S FIELD SERVICES
- Quality Requirements: Requirements for manufacturer’s field services.
  - Furnish initial start-up and shutdown during first year of operation, including routine servicing and checkout.

WARRANTY
- The warrantee starting date is after testing & commissioning of the system according to the following:
  - 5 years on the compressors of the outdoor units.
  - 5 years for the indoor unit & the outdoor units excluding the compressors.
• 2 years for the controllers.

b. The warrantee includes any manufacturing, transportation or installation defects.
c. The spare parts if needed within the warrantee period will be free of charge including its installation according to the warrantee details.
d. The whole system will be also covered by one year free of charge maintenance starting from the commissioning date. “Optional”
e. Two visits per year for routine servicing and checkout for the second year

➢ The Contractor must consider above points and include the additional price in the relevant unit price.

6. PARTICULAR CONDITIONS, SPECIFICATIONS AND SCOPE OF ELECTRICAL WORKS:

6.1 GENERAL TERMS:

It should be well known for the contractor that the execution of electrical works (programming and work time schedule) shall done after Engineer approval, as it depends on other contractors or material suppliers. Engineer shall coordinate between contractors and suppliers. Contractors shall cooperate and comply with decisions taken as coordinated and approved by UNRWA.

a. Electrical works consist of supply, install, test, and/or commission, all electrical materials and requires maintenance during the defect liability period.
b. Contractor must hand over all electrical installations to UNRWA in perfect and operable manner.
c. Work shall be as shown on shop drawings.
d. Contractor must get the Engineer’s approval for electrical materials before installation. Special request forms for approvals should be used for material and for the installation.
e. Electrical works should be coordinated with mechanical, civil, and architectural works and necessary changes to the drawings have to be discussed and agreed by the Engineer if needed.
f. Electrical workshop drawings should be submitted to the Engineer and approved before starting the electrical works.
g. Any item in the bills of quantities might be increased or decreased without changing the unit price of the item.
h. The contractor must submit all as built drawings before handing over the project.
i. All electrical materials shall comply with the new international specifications, especially the following list of standards – DIN, IEC, BS, IEE, and or IEEE.

Further to the requirements of the General & special conditions of the contract regarding the compliance of all materials and products and standards.

6.2 ELECTRICAL SUPPLY:

Normal low voltage supply in the site is 400/230V. 50Hz. 3-phase 4-wires. All electrical equipment shall therefore be checked before installation in order to operate satisfactorily on the above mentioned low voltage supply and operating temperature and within the following tolerance:

Voltage (# 10%)  
Frequency (# 2%)  
Design ambient temperature 35 C. – 60% R.H.

6.3 SHOP DRAWINGS:

Just after singing the contract, the contractor must prepare a full detailed shop drawings for all electrical systems included in his work. Drawings for each system shall show the followings details:

1- Routing of PVC conduits with full dimensions on plans for each system.
2- Size of each conduit or trunk.
3- Number of wires or cables passing through conduits, ladders, trays, and or trunking.
4- Locations of lighting fixtures or sockets and or any fitting in the low currents systems on plans.
5- Riser diagrams for each system.
6- External and internal cabling or wiring for each system.

6.4 Electrical materials sample:

Electrical material used shall be not more than one year old. Contractor must submit for approval catalogues with full details, for all materials he intended to use in electrical installations for the project. Samples must be checked prior submitting to Engineer by the contractor engineer, in order to make sure that the material is according to specifications, and of best quality. Manufacturer should stamp each sample.

6.5 Compliance with Regulations and Standards:

6.5.1 Applicable codes & all standards shall include all state laws, local ordinances, utility. Regulations & the applicable requirements of the following accepted codes & standards:

a. IEC. International Electrical commission, standard publication 364.
d. Peregrines LTD on behalf of the institute of Electrical Engineers.
e. Comply with related IEC, and BS. Regulations.
f. Codes & Regulations of local Electricity Authority.

6.5.2 The whole documents shall integrated each other & accordingly any work shown on the drawings & not described in the specifications or vice years, shall be executed under this contract.

6.5.3 All materials & workmanship shall comply with all applicable code specifications, or local Ordinances, British standards, utility company requirements.

6.6 Management of Work:

In order to supervise the execution of his work, the contractor will appoint a licensed Electrical Engineer, who must be approved by the UNRWA Electrical Engineer. The Contractor Electrical Engineer must be present on the site whenever the works constituting the subject of this contract are being carried out, and he will be the only person authorized to address to UNRWA Electrical Engineer with any problem arising during work execution. The Contractor Electrical Engineer will carry out his work subject to the UNRWA Electrical Engineer’s instructions, and any instruction issued by the Engineer.

In any event when a certain matter has to be clarified between the UNRWA Electrical Engineer and Contractor Electrical Engineer, and in the contractor’s absence, the Contractor Electrical Engineer must be fully authorized to represent the contractor and his signature will bind the contractors.

The contractor, through his Electrical Engineer, will conduct a regular work log, in which all work progresses processes will be entered, as well as the Engineers remarks and any claims for irregular works or processes will be entered, as well as the Engineers remarks and any claims for irregular works or (day work). This work-log must be kept on the site and be available to the UNRWA Electrical Engineer at all times.

The contractor will be responsible for the execute on and completion of his work, in such time as proves appropriate, for the progress of the over-all project, while co-ordination his work with the primary contractor and the other subcontractors, without causing any damages or delays in the works carried out inside the building and in the surrounding area. The contractor must ensure, particularly, that none of the junction boxes or passages/duct works already installed be locked by other installations such as: water pipes, sewage pipes, air conditioning ducts, etc. the contractor must submit to the UNRWA Electrical Engineer’s approval a timetable for the execution of his work, which had been co-ordinate with the timetable of the primary contractor.

6.7 Contractor’s Responsibility Warranty:
The contractor will be responsible to the UNRWA for the quality of the workmanship and materials he had supplied for a period of one year after the installation has been completed tested and accepted. Any malfunctions, failures, faults and defects detected in the installation during this warranty period, or any work found to have been executed not according to the plans, blueprints, specifications and instructions, will be repaired by the contractor, at his expense, within an appropriate time-interval, as determined by UNRWA Electrical Engineer.

Supervision of the contractor’s work and approval of it by the UNRWA Electrical Engineer will not exempt the contractor from his responsibility for the execution.

6.8 As Built Drawings:

Before the final, comprehensive test is commissioned, the contractor will prepare the electrical plans/drawings of the installation as built with clear makings of all deviations and changes carried out with the Engineer’s consent – in relation to the original plans. The contractor will submit to the Engineer two sets of updated plans in addition to those required for submittal to the Electrical Co. with CD’s for the purpose of testing the installation.

6.9 Installation Testing and Acceptance:

When the installation has been completed, a trial run will be carried out to ensure that the installation functions properly. Any malfunctions detected must be repaired to the UNRWA Electrical Engineer’s full satisfaction. Following the trial run, the contractor will commission a test by the official authority, which is to be co-ordinate in advance with the UNRWA Electrical Engineer. The contractor will invite the official authority to test the entire installation or any part as required by the UNRWA Electrical Engineer.

The work shall be considered complete after it has been accepted, without reserve, by the official authority, by the UNRWA Electrical Engineer, and after a trial run has been carried out. Any changes or repairs required will be carried out without delay, until the aforementioned installation has been finally accepted. The contractor will supply all the labor, means and instruments required in order to carry out the aforementioned tests and trial run. The UNRWA Electrical Engineer will serve as the exclusive arbiter regarding any term or definition contained within these specifications, as well as the evaluation of the works and their compliance with these specifications.

The following conditions and specifications must be adhered to throughout the execution of the electrical works:

a. The contractor shall be deemed to have inspected the site prior to the submission of his tender.
b. The electricians employed on the job shall be qualified and specialized in the installation of electric power distribution circuits and all necessary accessories.
c. The contractor undertakes to keep the noise and disturbance down to the minimum, keep the site tidy and clean all the time.
d. The contractor is deemed to have studied all relevant drawings thoroughly and any uncertainties or queries clarified prior to submission of the bid.
e. All materials must be approved prior to fixing and subject to testing or inspection as required by the Director of Works and UNRWA Electrical Engineer.
f. The contractor must provide manufacturer’s quality certificates and guarantees in respect of the materials supplied as required by the Director of works.
g. The general and particular electrical regulations relating to this type of work must be adhered to throughout the execution of work.
h. Shop drawings. Schematic diagrams and schedule of load shall be submitted by the contractor for approval as required by the director of works.

6.10 Scope of Electrical Works:

6.10.1 The DB and terminated wires must be named and numbered using sleeve labels & printed labeling the contractor.
6.10.2 The contractor must arrange the electrical load on DB by matching between the size of wires used and CB used for the same circuit.

6.10.3 The complete system shall be thoroughly tested before operation; tests shall be carried out by the contractor, under the supervision of UNRWA Electrical Engineer. Any modification or repair necessary on the completion of the tests shall be made good at the contractor’s expenses. The contractor shall provide all testing equipment and materials.

6.10.4 No more than 10 lighting points shall be connected to miniature circuit breaker.

6.10.5 No more than 4 socket outlet points shall be connected to miniature circuit breaker.

6.10.6 Bends in conduits shall be made such that the inside radius of the bend is not less than two and a half times the outside diameter of the conduit. Bent angles shall not exceed 90 degrees.

6.10.7 All conduit ends left open during the course of the works shall be plugged to avoid filling with plaster and the like.

6.10.8 Wires shall be standard 600 volt grade for both light and power circuits.

6.10.9 Devices intended to break current shall have a breaking capacity sufficient for the voltage employed and or the current that must be interrupted.

6.10.10 All electrical equipment, accessories and fittings exposed to weather; corrosive atmosphere, or other adverse conditions shall be so constructed or protected as may be necessary to prevent danger arising from such exposure.

6.10.11 All electrical equipment, accessories, fittings, cables, trunks and pipes shall be installed in a neat and a workman like manner.

6.10.12 No addition, temporary or permanent shall be made to the authorized load of an existing installation, unless it has been ascertained that the current rating and the condition of any existing conductors and the equipment which will have to carry the additional load are adequate for the increased loading and the earthing arrangements are also adequate.

6.10.13 The maximum permissible drop in voltage form the consumer terminals to any point in his installation shall not exceed 2.5% of the nominal voltage when the conductors are carrying full load current.

6.10.14 Cables shall not generally be connected in parallel except where for a particular loading, a single cable is insufficient and it is not practicable to employ bust bar trunking. In such situations single core or multicore cables may be connected in parallel provided that the cables are of the same type, size and length to ensure proper division of the current.

6.10.15 All wires conductors of cables connected to the phase of the supply shall have “Red” or “Yellow” or “Blue” outer layer of insulation and shall not be used as of cables connected to the neutral of the supply shall have “Black” outer layer of insulation and shall not be used as phase conductor. Finally, Green/Yellow colored wires or conductors of cables shall be used as “EARTH” conductor only.

6.10.16 Joints in wires shall not be permitted.

6.10.17 Circuits feeding face or more lights, the loop in system of wiring shall be employed.
6.10.18 Not more than three lighting circuit or two socket circuits shall be bunched in the same conduit.

6.10.19 Where a common cable trunking shall be manufactured with adequate strength and rigidity. All sharp edges, burrs and other projections shall be removed and the trunking finished smooth to prevent injury to cables and wires.

6.10.20 Cable trunking shall be securely supported every meter, when run exposed.

6.10.21 The number of single core cables that may be housed in a trunking shall be such that a space factor of 45 percent is not exceeded.

6.10.22 The wiring of each final circuit shall be electrically separate from that of every other final circuit and each circuit shall be provided with its own separate neutral.

6.10.23 Electrician involved in maintenance work has to have his own electrical measuring instrument for example Avometer, clamp meter, megger etc.

6.10.24 Make good all effected work due to replacement.

7. **ADDENDUM TO GENERAL INSTRUCTIONS**

**Testing of Materials:**

(a) Procedures on control of concrete quality.

(b) Checklist of engineering tests.

8. **TESTING OF MATERIALS**

A. **Procedures on Control of Concrete Quality.**

**Subject: Records Of Concrete Quality**

8.1 Purpose

This procedure is issued in order to achieve a uniform standard throughout the Agency and to facilitate verification of quality of concrete supplied to OR produced on Agency's construction sites.

8.2 Effective Date

This Procedure will become effective from March 22, 2004

Records of Concrete Quality Supplied to OR Produced on Site

8.3 Introduction

The procedure listed below is for the purpose of verifying that the materials used, mix proportions and production methods of concrete can reasonably be expected to consistently produce concrete complying with the specified requirements.

It does not address the question of the “in-situ strength” of the concrete (i.e. strength of concrete within the structure) which also depends on the method of placing, compaction, curing etc. For requirements on workmanship, curing etc. reference must be made to the general specification, other relevant ECS Procedures and technical reports issued.

8.4 Information to be checked at the start of a project
At the commencement of a project and prior to the commencement of any concrete works, the “Director of Works” has to satisfy himself that the concrete mixes proposed by the contractor can reasonably be expected to consistently produce concrete complying with the specified requirements. This assessment shall be based on the following information obtained from the contractor.

a. Source of each constituent material used in the mix and samples of the constituent materials. These samples must be retained in the site office as control samples until completion of the project.

b. Proposed quantity of cement, coarse aggregate and fine aggregate in one cubic meter of fully compacted concrete together with the corresponding information on water/cement ratio required and the magnitude of slump to be expected.

c. Information on crushing strengths of cubes from at least 100 previous samples of concrete (mostly applicable to ready mix concrete) made using the same aggregate quality, mix proportions, cement content and water/cement ratio as mix proposed at (B) above.

OR

If this information is not available or considered unreliable, results of 20 cube tests from trial mixes prepared using the mix design proposed at (B) above and the value of standard deviation expected or assumed in the mix design.

The above procedure for initial verification of likelihood of the proposed mix complying with specified requirements shall not in any way relieve the contractor of his responsibility to supply concrete of specified quality.

8.5 Equipment to be made available on site:

a. A large scoop capable of holding about 5kg of concrete.

b. Three buckets each capable of holding about 25kg of concrete or a wheelbarrow to collect samples.

c. 50X50X7cm. deep sampling tray.

d. 45X45X2cms thick ply wood board faced with a thin GI sheet on top.

e. 8 No. 15X15X15cms (internal) steel mould complying in all respects with the requirements of BS 1881 part 108 for making test cubes complete with standard compacting bar 1.8kg weight, 380mm long with a 25mm square ramming face.

f. 10X20X30cms high slump cone complete with 16mm diameter 600mm long tamping rod rounded at both ends.

g. Lockable GI curing tank of dimensions 100X100X50cms.

8.6 Frequency of Sampling

Random samples must be taken for testing and the site engineer must exercise careful engineering judgement on how frequent samples need to be taken from the concrete intended to be placed in the works. However, as a general guide, it can be said that at least one sample must be taken from every 10 cubic meters of concrete placed in columns and one sample for every 20 cubic meters for other structural elements. Notwithstanding this general guide, samples must be taken more frequently for testing the slump, making cubes and in some instances to be sent to a laboratory for chemical tests when the “Director of Works” or the Division Head or the Resident Site Engineer considers it necessary to check the correctness of the mix.

If as a result of visual inspection of a batch of concrete, the Resident Site Engineer has reason to believe that the quality of the concrete may be below the specified standard, the Resident Site engineer shall express his views to the contractor, record his views in writing to the contractor and take at least two separate concrete samples from the batch. Quantity of concrete in each sample must be sufficient to make four concrete test cubes, one slump test and for any laboratory tests for chemical analysis considered necessary under certain circumstances.

8.7 Procedure for numbering and testing concrete cubes
Four test cubes shall be made from each concrete sample. The test cubes made from start to completion of concrete works must be numbered in sequence as (1A, 1B), (2A, 2B), (3A, 3B), (4A, 4B), … and so on. Cubes 1A, 1B, 2A, 2B will be from the first sample of concrete, 3A, 3B, 4A, 4B from second sample and so on.

Records of cubes must be kept on site in the form of a “Quality Control Report”. See Appendix 1 for specimen form. At the end of every week in which concreting has taken place, a copy of this report must be forwarded to the “Director of Works” through the Division Head. This record is in addition to the regular ‘weekly reports’ forwarded by the Resident Site Engineers.

Cubes bearing odd numbers (1A, 1B, 3A, 3B, etc.) are to be tested at 7 days and those bearing even numbers (2A, 2B, 4A, 4B, etc.) are to be tested at 28 days. The average of the two results from same sample is taken to be the “Test Result” i.e. average of (1A, 1B), (3A, 3B) etc. is the “7 day Test Result” and average of (2A, 2B), (4A, 4B) etc. is the “28 day Test Result”.

8.8 Test Reports forwarded by Testing Laboratories

Testing laboratories must be requested to forward the test reports direct to the Director of Works. The Director of Works, after perusal, should transmit the test reports to the Division Head and Resident Site Engineer for appropriate action and completion of the quality control report.

Quality control reports and laboratory test reports and any correspondence relating only to test results must be kept in the Field ECSD in a separate folder for each project to enable quick verification. These records must not be filed amongst other correspondence related to the project but may be kept in a separate folder attached to the project file. Resident Site Engineers must maintain records separately until the end of the project. ECSD, HQ (A) staff visiting the fields will monitor these site records from time to time.

8.9 Criteria for Assessment of Compliance with Specified Strength

Compliance with specified strength shall be assumed if both the following conditions are met:

a. The average of four consecutive “28 day Test Results” exceeds the specified strength by 3 N/mm² (30kg/cm²) and

b. The strength shown by any “28 day Test Result” is not less than the specified strength minus 3 N/mm² (30kg/cm²).
## Appendix 1
Concrete Quality Control Report

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## Checklist of Engineering Test

**Purpose**: To ensure the equipment operates correctly and safely as per the manufacturer's specifications and the project requirements.

### 1. Pre-Test Preparation
- Review equipment manuals
- Confirm all components are present
- Prepare necessary test materials

### 2. Test Procedure
- **Step 1**: Test Functionality
  - **Action**: Check all electrical connections
  - **Evidences**: Use multimeter to verify voltage levels
- **Step 2**: Performance Verification
  - **Action**: Measure output against specified values
  - **Evidences**: Compare with manufacturer's data sheet

### 3. Post-Test Review
- **Action**: Document any deviations from specifications
- **Evidences**: Record test results and observations

### 4. Final Approval
- **Action**: Obtain signature from authorized personnel

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### Action Items
- Review and update as necessary
- Ensure all test reports are filed

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**Note**: This checklist is a guide and should be adapted to specific project requirements.
ANNEX D – DRAWINGS

The drawings for this project is indicated in four files named as below:

1. Cover
2. Part No.1
3. Part No.2
4. Part No. 3

Note: These drawings are not annexed here but they are attached directly in Intend as Annex D
Specification for Building Maintenance and Medium Building Construction Works
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101 Office of the Director of Works

1. The Contractor shall provide, erect, maintain and remove on completion of the Works the offices and their contents, access roads and hard standing thereto described in the Contract for the use of the Director of Works. The offices shall be ready for use by the Director of Works within 2 weeks of the Date of Commencement of the Contract and shall be regularly and properly cleaned for so long as they are in use.

2. The offices shall be furnished by the Contractor with all required furniture and equipment as described in the Contract Documents to the approval of the Director of Works.

3. The Contractor shall provide and keep in good repair one (1) slump cone and two (2) 30m and 50m steel tapes for testing materials and workmanship.

4. The Contractor shall provide and maintain the offices with an A/C for cooling and heating.

102 Traffic Safety

1. The Contractor shall provide, erect and maintain such traffic signs, lamps, barriers, traffic control signals and such other measures as may be necessitated by the construction of the Works to the satisfaction of the Local Authority and the Director of works.

2. The Contractor shall not commence any work which affects public roads until all traffic safety measures necessitated by the work or required by the Local Authority are fully operational.

3. The Contractor shall keep clean and legible at all times all traffic signs, lamps, barriers and traffic control signals and he shall position, re-position, cover or remove them as necessitated by the progress of the Works.

103 Temporary Diversion of Traffic

1. The Contractor shall construct temporary diversion ways whoever the works will interfere with existing public or private roads and other ways over which there is a public or private right of way for any traffic.

2. The standard of construction and lighting shall be suitable in all respects for the class or classes of traffic using the existing way and the width of the diversion shall be not less than that of the existing way unless otherwise described in the Contract.

3. Diversion ways must be constructed in advance of any interference with the existing ways and shall be maintained to provide adequately for the traffic flows.

4. The provisions of this Clause shall not apply to any temporary access or accommodation works which the Contractor may construct for his sole use in the execution of the Works.

5. The Contractor shall not commence any work without coordination with the relevant Authorities and owners.
104 Privately and Publicly Owned Services

1. If any privately owned service for water, electricity, sewerage, etc. passing through the Site is affected by the Works then the Contractor shall locate it and provide a satisfactory alternative service before cutting the existing service.

2. The position and type of Public Authority main services utilities shall be verified by the Contractor who must satisfy himself as to the exact position and type of such existing utilities. The Contractor shall coordinate and take all measures required by any Public Authority for the support and full protection of the pipes, manholes, cables and other utilities during the progress of the works. The Contractor shall make allowance in his price for compliance with this clause.

105 Existing Ground Levels

1. The Contractor shall satisfy himself that the existing ground levels as indicated in the Contract are correct. Should the Contractor wish to dispute any levels he shall submit to the Director of Works a schedule of the position of the levels considered to be in error and a set of revised levels. The existing ground relevant to the disputed levels shall not be disturbed before the Director of Works’ decision as to the correct levels is given.

106 Coins and Antiquities

1. Any coins or antiquities found on the site are to remain the property of the employer and are to be handed over to the Director of Works.

2. The Contractor is responsible for any coordination with the relevant Authorities.

107 Protection and Making Good

1. The Contractor shall protect all completed works from damage until the completion of the Works to the approval of the Director of works.

2. Should the Contractor allow any works to be damaged he shall at his expense make good or replace, as required by the Director of Works, to the approval of the Director of Works.
201 **Scope**

1. The area to be demolished is shown in the Contract Drawings. This includes site clearance, safety, pollution control; Country Regulations about location of dump area...etc. in accordance to the standard and Country Regulations.
2. Areas adjacent to demolition works shall be protected from damage resulting from the demolition.
3. Particulars of the proposed methods of carrying out demolition works, handling and sorting of recyclable materials and disposal of construction and demolition waste shall be submitted to the Director of Works for information at least 7 days before the demolition starts.
4. The Contractor shall comply with the requirements of preservation, protection and replanting of existing trees before commencing site clearance.

202 **Giving Notices**

1. The Contractor shall give all notices to wear, gas, and lighting and power Authorities and shall allow them facilities for removing or relocating any fixtures, fittings or services which may belong to them.

203 **Nuisance**

1. Demolition work is to be carried out in such a manner as to cause the minimum possible inconvenience to adjoining owners, users of existing facilities or the general public, and the Contractor will be held responsible for any claims arising from the disregard of this Clause in accordance to the country regulations. All rubbish and the works where necessary are to be prickled with water to prevent dust arising and screens and protection provided to the satisfaction of the Director of works.

204 **Water and Electricity**

1. The Contractor shall provide all necessary water and electricity for the works by whatever means are necessary, including temporary connections, supply installation and storage tanks, and clear away and remove the whole of the temporary installation upon completion.

205 **Reinstating**

1. The Contractor shall reinstate at his own cost and make good all damage occurring to remaining structures and/or adjoining property. All making out and making good is to be executed with materials and workmanship to match in every respect the surrounding work, and shall be properly bonded thereto. All to the satisfaction of the Director of Works.

206 **Road and Footways**
1. The Contractor is responsible for maintaining all public/internal roadways and footpaths and shall be responsible for and make good any damage thereto occurring as a result of the demolition work.

207 Plant

The Contractor shall provide all plant, scaffolding, gangways, planks, gantries, tarpaulins etc., for proper execution and protection of the works and adjoining buildings, roadways and footpaths.

208 Signboard

1. Where necessary the Contractor shall obtain all consents, pay all fees for and provide and erect vertical signboard to road frontages size 3m x 2m X 2mm thick painted steel to the approval of the Director of Works, on which will include the name of the Project, the Agency (UNRWA), the Donor of the Project and the name of the Contractor including the emblems of UNRWA and Donor as well the period of the project.

209 Diversion of Services

1. Before commencement of the demolition work, all electrical, water, telecommunication, heating, sprinklers, sanitation and other services which come within the area to be demolished shall be disconnected or redirected in such a manner as to provide the buildings which are to remain with said services totally unaffected by the demolition work. The Contractor shall be responsible for coordination with Services Provider Authorities in the country.

210 Pulling Down

1. Pull down the whole of the structure marked on the Contract Drawings to basement floor level and clear all cellular of debris, rubbish and other material. Include for pulling down of basement walls as shown on the Contract Drawings. Basement shall properly cleaned out and filled with hardcore in layers not exceeding 15cm compacted thickness in accordance with Clause 408.

2. Where there is no existing basement, break up ground floor slam and grub up foundations.

3. Provide all necessary shoring, safety measures, strutting etc., required to maintain adjoining buildings.

211 Overloading
1. Materials arising from the demolition must not be stacked or allowed to accumulate on existing structures in such a way as to endanger their stability. The Contractor will be solely responsible for damage arising from this cause.

212 Exposed Party Walls

1. Where existing party walls are exposed due to demolition work, the Contractor shall remove old plaster or wall covering (if any), rake out joints and leave ready to receive new plastering etc., elsewhere specified).

213 Enclosing Adjoining Buildings

1. Where floors of adjoining buildings are exposed to the outside air provide and erect in back from edge of floor temporary framed and close-boarded screens with access doors and fastenings covered on the outside with approval roofing felt. Adapt as necessary during the progress of the work and clear away when no longer required.

214 Materials arising out of the demolition

1. The Contractor shall be responsible to dismantle carefully all usable material as specify in the contract, such as steel and wooden doors, windows, electrical and sanitary fixtures, cupboards etc., which are to remain the property of the Agency and are to be cleared and stacked as directed on site or disposed of according to the instruction of the Director of Works.

2. The material arising from the demolition is to become the property of the Contractor unless otherwise stated in the Contract Documents and is to be removed from site to a tip provided by the Contractor. No excess materials shall be burnt on site without the written approval of the Director of Works.

215 Grub up Services

1. Grub up galleys, break up manholes etc., and fill in voids in accorded with Clause 408. Stop off all disused drains at point of entry and seal with concrete. Remove all water supply pipes at point of entry; plug and seal all dead ends.

216 Removal of Plant

1. The Contractor shall, upon completion of the demolition works, remove and clear away all temporary buildings, plant, rubbish and superfluous materials, and shall leave the site in a clean and tidy state to the satisfaction of the Director of Works.

217 Approval

1. Demolition work shall not be commenced before obtaining the written approval of the Director of Works.
300

Underpinning
301 **Scope**

1. Underpinning will only be carried out as shown in the Contract Documents and shall be executed under the direct supervision of the Director of Works.

302 **Timbering and Shoring**

1. Provide and fix all required timbering, needling, shoring etc., to ensure the safety of adjoining wall whilst underpinning. Remove and make good all disturbed work on completion.

303 **Underpinning**

1. Where foundations of new walls are below the level of foundations of walls of adjoining premises, excavate as necessary and underpin from the level of bottom of new foundations up to approx. 5cm below underside of foundations of old wall with concrete mix 300/20 for the full thickness of the foundation or as shown in the Contract Drawings.
2. Excavating and connecting shall be carried out in short, discontinuous lengths not exceeding 1.5m unless expressly directed by the Director of Works.
3. Plank and strut to sides of excavation as required or directed.
4. Provide and fix all necessary temporary shuttering to vertical faces of existing foundations and underpinning, and remove when no longer required.
5. Wedge and pin up on top of new underpinning to underside of existing foundations with cement and sand (1:3) mixed fairly dry and well rammed in.

304 **Disposal of Surplus Material**

1. Remove all surplus material to a tip off the site provided by the Contractor.
Excavation, Earthworks and Site Works

400

Excavation, Earthworks and Site Work
401 Nature of Excavation

1. Information over the nature of the ground conditions made available by the Agency as the result of trial holes (bores) being made or soil test investigation report, does not in any way absolve the Contractor from his responsibilities nor is it guaranteed that similar conditions apply throughout the site.

2. The contractor shall be deemed to have visited the site, inspected trial holes (if any) and decided for himself the nature of the ground and sub-soil to be excavated.

402 Rock

1. Where rock is encountered in the course of excavation it should be removed with any required machineries / equipment, wedges and levers. Loose rock shall be removed and resulting cavities backfilled in accordance with Clause 407.

403 Sand or Ballast from the Excavation

1. Gravel or selected material, if approved by the Director of Works may be used for backfilling around foundations or making up levels according to the Contract Documents.

2. It is strictly forbidden to dig for gravel beyond the limits of the excavations as set out in the Contract Documents.

404 Clear Site

1. Clear site of all rubbish, grub up bushes, shrubs including trees with different heights and dimensions and plantings on site as indicated in the Contract Documents. Demolish, break up and remove buildings, structures and superficial obstructions on the site in the way of or otherwise affected by the Works.

2. Grub up all roots, break up and remove old foundations, drains or manholes, empty and cleanse all old wells and cesspools found during the excavations, seal up connections and dead ends, remove all contaminated earth, fill in voids in accordance with Clause 407.

3. Existing Trees and Roots
   (a) Where shown in the Contract Documents trees shall be uprooted or cut down as near ground level as possible or as instructed by the Director of Works.
   (b) All felled timber shall be removed from site and shall not be burned on site without the written approval of the Director of Works. Such approval does not absolve the Contractor from his responsibilities in respect of damage to property caused by burning felled timber.
   (c) Holes left by the roots shall be filled in accordance with Clause 407.

4. Trees, bench marks and other objects which are to be retained on the Site shall be adequately protected from damage during the course of the works.

5. Clear the Site of all surplus excavated materials and other debris from the Works and leave clean and tidy on completion.
405. **Excavation**

1. Excavate in any material whatsoever found to reduce levels and to form trenches, pier holes, column bases and the like to the sizes, depths and dimensions shown on the drawings or as directed by the Director of Works. The last 15cm of the excavation shall be performed using light equipment/tools and manually to the approval of the Director of Works.

2. No excavated material shall be removed from the site unless the Director of Works declares that it is unsuitable for use in the works or surplus to the total requirements. Material that is unsuitable for use or surplus to total requirements shall be run to tips provided by the Contractor.

3. All soil that can support vegetation shall be removed from the site of new buildings, terraces, pathways etc., and shall be kept separate from general excavation materials.

4. Defective or soft spots at the bottom of excavations shall be excavated and filled with a lean concrete mix (1:8) to the satisfaction of the Director of Works.

5. The Contractor shall make good with granular fill to Clause 407 or a lean mix concrete (1:8) as directed by the Director of Works:
   (a) Any excavation greater than the net volume required for the Works as described in the Contract.
   (b) Any additional excavation or at below the bottom of foundations to remove materials which the Contractor allows to become unsuitable in the opinion of the Director of Works.

6. The sides of excavations shall be supported by whatever means the Contractor elects to adopt. The supports shall be sufficient to prevent “fall-ins”.

7. Level and trim the bottoms of all excavations including excavation in rock.

8. Bottoms of all trenches pier holes etc., are to be inspected and approved by the Director of Works before concrete or hardcore is laid.

9. The excavation area shall be fenced and protected to avoid accidents which may be resulting from any movements beside the excavation.

406 **Suitable Fill**

1. Return fill and consolidate in selected excavated material (to be not included any red/mud soil) around foundations up to original ground level or to the levels shown, in layers not exceeding 15cm compacted thickness. The material shall be well watered before compaction unless otherwise directed. The Contractor shall be responsible to carry out the compaction laboratory tests, samples to be indicated and directed on site to the instruction of the Director of Works.

407 **Granular Fill**

1. Make up to required levels for floor slabs and at the back of walls as shown in the Contract Drawings or where otherwise shown or directed with selected excavated granular material or hardcore, laid in layers, not exceeding 15cm compacted
thickness. The material shall be well watered before compaction unless otherwise directed. The Contractor shall be responsible to carry out the compaction laboratory tests, samples to be indicated and directed on site to the instruction of the Director of Works.

408 **Hardcore**

1. The material for hardcore shall be chemically inert and possess a physical strength adequate for its purpose. Hardcore shall be well graded in size and shall all pass a 15mm BS sieve.
2. Suitable materials are natural sand, crushed or uncrushed stone or quarry rubble, coarse well burnt clinker, crushed concrete or well burnt brick or a combination of any of these.
3. Hardcore beds shall be finished with a layer of sand.

409 **Disposal of Water**

1. Keep the Site and excavations free from all water by pumping, bailing or other means.
2. The Contractor shall satisfy himself before tendering as to the water table, springs and wells on the Site or adjacent thereto and shall allow in his prices for the removal of all water on the Site during the course of the Works.
3. The Contractor is responsible for any damage to adjoining properties caused, in keeping the excavations free from water. The Contractor must not without written authority use a method of keeping the excavations free from water which involves continuous pumping so as to withdraw water from the foundations of adjoining sites.

410 No filling in shall be executed until the concrete foundations, footings, walls etc., have been inspected and approved by the Director of Works.
Concrete Work

500

Concrete Work
501 **General**

1. Execute and complete the concrete work shown on the drawings and/or described in the Contract Documents.

2. The contractor shall ensure that each stage of the construction of the reinforced concrete work is supervised and finally inspected by competent and responsible members of his site staff. Proportions of materials for concrete shall be accurately measured in an approved manner and all equipment and measuring devices shall be properly maintained and regularly checked to the satisfaction of the Director of Works.

502 **Cement**

1. Cement shall be ordinary Portland cement to comply with BS EN 197-1:2011 unless otherwise stated.

2. Cement shall be obtained from an approved manufacturer (except when it is provided by the Agency) and shall be delivered to the Site in the sealed and branded bags or drums of the manufacturer.

3. Cement shall be stored off the ground and under cover. Each consignment shall be kept separate and identified.

4. Cement shall be used in the order of its delivery to the Site; cement from new deliveries shall not be used until all cement from earlier deliveries has been completely used.

5. No cement shall be used which has been manufactured more than max six months prior to its proposed use on site for non-structural purposes only. For all structural jobs should always use fresh cement all to the approval of the Director of Works.

503 **Aggregate**

1. In general aggregate should be a naturally occurring material complying with the requirements of BS EN 12620:2002+A1:2008.

2. The Director of Works may approve on request the use of other aggregate including types or grading not covered by the BS provided that there is satisfactory data on the properties of concrete made with them.

3. Aggregates shall be stored so that they are self-draining and are not contaminated by other material.
4. Coarse aggregate shall be batched separately from fine aggregate.

5. Samples of the aggregate shall be approved by the Director of Works before the commencement of the Works.

6. The Director of Works may, at his sole discretion, select samples of aggregate from each delivery of aggregate to the site for testing.

7. Coarse Aggregate

(a) Coarse aggregate shall be natural gravel or crushed hard stone, clean and free from dust, loam, clay and organic matter. Crushed stone shall not be of sandy, decayed, or disintegrated rock, or from sulphate, anhydrite or magnesia bearing rock.

(b) Coarse aggregate shall be graded as follows (% by weight)

(i) 20mm graded Aggregate for concrete

100% passing of 37.5mm sieve

95-100% passing a 20mm sieve,

30-60% passing a 10mm sieve

0-10 passing a 5mm sieve,

(ii) Aggregate for blocks

100% passing a 20mm sieve,

85% passing a 15mm sieve,

30% passing a 10mm sieve,

0% passing a 5mm sieve.

c) Careful attention shall be given to the selection and grading of aggregate to ensure that the minimum compressive strengths are attained. A continuous graded aggregate is normally required.

8. Fine Aggregate (Sand)

(a) Fine aggregate shall be natural sand, clean, sharp, coarse grained, and shall mostly pass a 5mm sieve and be free from dust, loam, clay and organic matter.
(b) The grading curve of the fine aggregate for concrete shall fall within one of the following zones

Percentage by weight passing

<table>
<thead>
<tr>
<th>BS Sieve Size</th>
<th>Grading zone 1</th>
<th>Grading 2</th>
<th>Grading 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>10mm</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5mm</td>
<td>90-100</td>
<td>90-100</td>
<td>90-100</td>
</tr>
<tr>
<td>2.36mm</td>
<td>60-95</td>
<td>75-100</td>
<td>85-100</td>
</tr>
<tr>
<td>1.18mm</td>
<td>30-70</td>
<td>55-90</td>
<td>75-100</td>
</tr>
<tr>
<td>600 micron</td>
<td>15-34</td>
<td>35-59</td>
<td>60-79</td>
</tr>
<tr>
<td>300 micron</td>
<td>5-20</td>
<td>8-30</td>
<td>12-40</td>
</tr>
<tr>
<td>150 micron</td>
<td>0-10</td>
<td>0-10</td>
<td>0-10</td>
</tr>
</tbody>
</table>

(c) Fine aggregate for all work, other than concrete, shall pass a 2mm sieve and not less than 95% (by weight) shall be retained on a sieve of 900 mesh/cm².

504 Water

1. Water for use in the Works shall be clean, fresh, potable water free from chemical or organic taint.

2. Water is neutral in PH value, free from suspended solids and liquid contaminants non-miscible with water and that when tested according to the procedures given in BS EN 1008:2002; it had no significant effect on the setting time or strength of concrete.

3. Samples of water shall be approved by the Director of Works before the commencement of the Works.

505 Admixtures

1. In general admixtures may not be used.

2. The Director of Works may approve on request use of an admixture if there is satisfactory data on the properties of concrete made with it. This suitability will generally require verification by trial mixes.

3. Both the amount of admixture and the method of use should be to the approval of the Director of Works, who should be provided with the following data:

   i) Type and/or Proprietary brand
   ii) Typical dosage and the detrimental effects of under dosage/over dosage, if any.
iii) The chemical name of the main ingredient(s) in the admixture.
iv) Whether or not the admixture contains chlorides and if so the chloride iron content expressed as a percentage by weight of the admixture.
v) Whether or not the admixture leads to air entrainment when used at the recommended dosage.

506 Steel Reinforcement

1. Hot rolled mild steel bars and hot rolled high yield steel bars shall comply with the requirements of BS 4449:2005+A2:2009 or approved equivalent.

2. Cold worked steel bars shall comply with the requirements of BS 4449:2005+A2:2009 or approved equivalent.

3. Steel fabric reinforcement shall comply with the requirements of BS 4483:2005 or approved equivalent and shall be delivered to the site in flat mats.

4. Steel reinforcement shall be stored in proper racks clear of the ground.

5. Steel reinforcement shall be free from oil, dirt, scale, loose rust and other deleterious matter before being placed in position.

507 Concrete

1. The concrete mix shall generally comply with the requirement of Table 1.

Table 1 prescribed mixes for ordinary structural concrete

Weighs of damp aggregate based on one/50 kg bag of cement (kg)

<table>
<thead>
<tr>
<th>Cube Strength (kg/cm²)</th>
<th>Maximum Size of Aggregate (mm)</th>
<th>20</th>
<th>150</th>
<th>200</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workability</td>
<td>Medium 27-75</td>
<td>High 75-125</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slump (mm)</td>
<td>240</td>
<td>215</td>
<td>190</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td>Coarse Aggregate</td>
<td>155</td>
<td>135</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sand</td>
<td>215</td>
<td>200</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>135</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td>190</td>
<td>155</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>115</td>
<td>115</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes to Table 1.

a) The weights of fine aggregate may be adjusted by ±14 kg to obtain a more cohesive mix but the total weight of aggregate should be maintained.
b) Batching using part bag mixes is not allowed.
c) The Director of works may allow volume batching for grades 100/150/200 in which case the bulk density of the damp aggregates may be taken as 1450 kg/m3.

2. The Director of works may on request approve use of a concrete mix designed by the contractor provided that this design meets the requirements of Table 2. Evidence of the suitability of the proposed mix shall be submitted to the Director of Works to show that at the intended workability the proposed mix proportions and manufacturing method will produce concrete of the required quality. This will generally involve the production of trial mixes using materials typical of the proposed supply made under full scale production conditions. At least 3 separate batches of concrete shall be made for trial and these shall be tested for compliance with the requirements of Table 2 of the specification, at least 3 test cubes being made from each batch of concrete. Once a mix is approved no substantial change in the materials or proportions of materials being used shall be made without the approval of the class of concrete is denoted by the minimum 28 days cube strength (kg/cm2) and the maximum size of aggregate.

3. The class of concrete is denoted by the minimum 28 day cube strength (kg/cm2) and the maximum size of aggregate.

---

Table 2 Design Mixes for Ordinary Structural Concrete

<table>
<thead>
<tr>
<th>Class kg/cm2/mm</th>
<th>Minimum cement content (kg/m3)</th>
<th>Minimum Compressive Strength Preliminary Test</th>
<th>At 28 days (kg/cm2) Works Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>200/20</td>
<td>300</td>
<td>300</td>
<td>One cube minimum 180 and the average 220</td>
</tr>
<tr>
<td>250/20</td>
<td>300</td>
<td>350</td>
<td>One cube minimum 225 and the average 275</td>
</tr>
<tr>
<td>300/20</td>
<td>300</td>
<td>400</td>
<td>One cube minimum 270 and the average 330</td>
</tr>
</tbody>
</table>
Notes to table 2:

a) Aggregate shall be weight batched.
b) Cement may either be weight batched or measured by whole bags.
c) Cement content shall not exceed 540 kg/m³.

508 Mixing

1. Cement shall be measured by weight or by the use of a whole number of 50 kg bags. Sand and aggregate generally shall be measured by weight but the Director of Works may approve volume batching of grade 100/150/200 in which case approved gauge boxes must be used.

2. The amount of water added to the dry mix shall be sufficient to give a mix that complies with the requirements of Table 1 or 2 but in no case shall the water/cement ration exceed 0.60. The amount of water used shall be measured by weight or volume in a manner approved by the Director of Works.

3. The consistency of the mix shall be such that facility for easier placing does not affect the required compressive strength of the concrete. Slump cone, filled in four progressive layers, each well tamped. The cone shall be removed immediately after filling.

4. All mixing shall be carried out in a mechanical batch mixer of minimum capacity of 250 liters unless otherwise approved. Concrete shall be mixed for not less than two minutes after the addition of water and mixing shall continue until there is a uniform distribution of materials and the mass is uniform in color and consistency.

509 Ready Mixed Concrete

1. Ready mixed concrete may, with the approval of the Director of Works, be used on the contract and it shall comply with all the requirements of the Specification.

2. The concrete shall be carried in purpose made agitators operating (Industrial Mixer) continuously or truck mixers.

3. The concrete shall be compacted and in its final position within 2 hours of the introduction of cement to the aggregates, the time of such introduction shall be recorded on the delivery note together with the weight of the constituents of each mix.
4. When truck mixed concrete is used the water shall be added under supervision either at the site or at a central batching plant as agreed by the Director of Works but under no circumstances shall water be added in transit.

5. Mixing shall continue for not less than 100 revolutions at a rate of not less than 7 revolutions per minute.

6. All structural elements shall be ready mix concrete.

510 Placing of Reinforcement

1. Reinforcement shall be placed in accordance with the drawings. Nothing shall be allowed to interfere with the design requirements of the reinforcement. Reinforcement shall be secured to prevent displacement before or during the pouring of concrete. Braces, supports, distance pieces and spacers which are to be left in position shall be of an approved design, if concrete they shall be made with 10mm maximum size aggregate to produce the same strength as the adjacent concrete. The inside radius of stirrups shall be in full contact with the rods around which they fit.

2. Rods shall be bound together with pliable, annealed soft iron wire no. 16 B.W.G (Birmingham Wire Gauge) (1.65mm) unless otherwise specified. The projecting ends of this wire shall be turned into the main body of the concrete and shall not encroach on the cover.

3. Reinforcement shall be cut and bent in accordance with BS 8666:2005 and BS EN ISO 3766: 2003. Cold-worked or hot-rolled high yield bars shall not be straightened or bent again once having been bent. Where it is necessary to bend reinforcement projecting from the concrete the internal radius of the bend shall not be less than twice the diameter of the bar.

4. During the placing of concrete a responsible steel fixer shall be in attendance to perform any adjustments or corrections to the reinforcement necessary to maintain it in the position shown in the Contract.

5. Reinforcement shall be inspected and approved by the Director of Works before the concrete is poured. Such approval shall not relieve the Contractor of his responsibilities in connection with the Work.

6. The horizontal distance between individual reinforcement bars shall normally not, except at splices, be less than the diameter of the largest bar or 5mm more than the nominal maximum size of the coarse aggregate used whichever is greater. The vertical distance between parallel reinforcement shall normally not, except at splices, be less than the nominal maximum size of the coarse aggregate used. Bars may be arranged in pairs touching in which case the gap between pairs of bars shall be as specified above. The gaps between corresponding pairs in each row should be vertically in line.

7. The lengths of splices, dowels and anchors, shall be for mild steel plain bars 46D, high yield steel plain bars 53D, high yield steel deformed bars 41D(D: bar diameter).
8. The concrete cover to all reinforcement including links shall be:
   a) In slabs – 2.5cm
   b) In beams – 2.5cm
   c) In columns – 3.0cm
   d) In footings and all earth and water retaining structure – 5.0cm

9. Reinforcement in structures shall not be welded.

511 Formwork

1. The contractor shall supply formwork, shuttering, props, strutting, hanging bolts, staying, gangways, expansion boards, fillets, moldings and the like and shall ease and remove the same and do all that is necessary to execute and complete the concrete construction.
2. Formwork shall be adapted to the structure and the finish of the concrete and shall be made of metal or timber sufficiently rigid and tight to prevent loss of grout or mortar from the concrete at all stages. It shall be fixed to the correct shape and profile securely supported and braced to withstand vibration or the movement of plant, men or materials without deformation or displacement so that the final concrete structure shall be in the position and of the shape dimensions and surface finish described in the Contractor.
3. The maximum permissible deflection of the formwork under any load shall be 2mm or 1/600th of the unsupported span, whichever is the lesser.
4. Joints in formwork shall be close enough to prevent the loss of liquid from the concrete.
5. Formwork shall be so arranged as to permit easing and removal without jointed the concrete. Wedges, cramps and bolts shall be used wherever possible for securing the true position of the forms.
6. Sawn formwork, namely properly designed formwork of closely jointed swan boards, may be used for surfaces which are to be rendered or plastered.
7. Wrought formwork, namely properly designed formwork or closely jointed planed thicknesses boards, with joints aligned to produced continuous or horizontal lines shall be used for concrete surface which will remain exposed, the resulting surface shall be smooth and free from blemishes.
8. Formwork shall be cleaned out immediately before concrete is placed and necessary temporary openings shall be left to facilitate cleaning.
9. The internal faces of formwork shall be treated with mold oil, care being taken that the mold oil does not contaminate the reinforcement.
10. Formwork shall be inspected and approved by the Director of Works before concrete is poured which approval shall not relieve the Contractor of his responsibility for the safety and efficiency of the formwork.
11. **Striking Formwork**
   (a) The Director of Works shall be informed in advance when the Contractor intends to strike any formwork.

   (b) The time at which the formwork is struck shall be the Contractor’s responsibility. However, formwork supporting cast in situ concrete may be struck when either:

   (i) The concrete has, in the opinion of the Director of Works, attained a compressive strength of 200 kg/cm² or twice the stress to which it will then be subject, provided such earlier striking will not result in unacceptable deflections due to creep etc.

   (ii) The following minimum periods shall have elapsed between the completion of placing of concrete in the Works and the removal of the forms. These periods are based on the use of Ordinary Portland Cement and a constant surface temperature of the concrete of 16°C and shall be increased in colder weather or in the case of large spans all to the approval of the Director of Works.

   Vertical formwork to columns, beams, walls 24 hours

   Soffit formwork to beams and slabs 12 days

12. Care shall be taken that when formwork is reused its surface shall be thoroughly cleaned to the approval of the Director of Works.

512 **Placing Concrete**

1. Concrete shall not be placed in any part of the structure until the written approval of the Director of Works has been given.

2. Concrete shall be placed as soon as possible after mixing and in all cases within (30) minutes after mixing commences or within 30 minutes after discharge from the agitator for ready mix concrete.

3. Concrete shall be transported by an approval means which shall prevent contaminated or segregation or loss of the ingredients.

4. Concrete which is be lowered to a depth exceeding 120cm shall be conveyed in suitable vessels or by chute to a point as near as possible to the location of pouring. The vessels or chute shall be kept clean and well-watered.

5. All concrete shall be compacted to produce a dense homogeneous mass.
Unless otherwise agreed by the Director of Works it shall be compacted with the assistance of vibrators. Sufficient vibrators in serviceable condition shall be on site so that spare equipment is always available in the event of breakdowns.

6. Vibration shall not be away of the reinforcement. Where vibrators of the immersion type are used, contact with reinforcement and all inserts shall be avoided, so far as is practicable.

7. Concrete shall not be subjected to vibration between 4 and 24 hours after compaction. When in-situ concrete has been in place for 4 hours, or less as directed by the Director of Works no further concrete shall be placed against it for at least 24 hours and until the final Setting Time of Concrete.

8. Concreting of any one unit or section of the work shall be carried out in one continuous operation and no interruption of the work will generally be allowed. Where beams and slabs form an integral part of the structure they shall be poured in one operation. Concrete shall be deposited in horizontal layers to a compacted depth not exceeding 450mm where internal vibrators are used or 300mm in all other cases.

9. Temperature limits During Concreting

(a) Concreting shall be discontinued when the descending air temperature in shade reached 2°C and shall not be resumed until the ascending air temperature in the shade reached 1°C.

(b) When the air temperature in the shade is above 32°C special precautions shall observed during mixing and pouring concrete to the satisfaction of the Director of Works which should include:

(i) Shading of the aggregate piles

(ii) Adding the water to the aggregate before the cement

(iii)Concrete shall be protected from the sun and wind as soon as it is placed.

(c) Concrete when deposited shall have a temperature of not less than 5°C and not more than 32°C. Concreting shall not be permitted when the air temperature in the shade is above 45°C.
513 Finishes

1. **Unformed Surface Finish**

   (a) Generally the concrete shall be uniformly leveled to produce a plain surface and after the concrete has hardened sufficiently the surface shall be floated to produce a uniform surface free from screed marks.

2. **Steel Troweled Finish**

   (a) The concrete shall be uniformly levelled to produce a plain concrete surface.

   (b) After the concrete has hardened sufficiently the concrete surface shall be floated sufficiently only to produce a uniform surface free from screed marks.

   (c) When the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the concrete shall be steel trowel led under firm pressure to produce a dense smooth uniform surface free from trowel marks using required machinery for this job as Helicopter machine.

3. A slab finish which is to receive waterproofing shall be to an accuracy such that when tested with a 3m straight edge the maximum depression shall not exceed 10mm nor shall abrupt irregularities exceed 3mm.

514 Construction Joints

1. Construction joints shall only be formed where shown on the drawings or approved in writing by the Director of Works.

2. Construction joints shall be made at right angles to the axis of the member and formed against firm stop boards. Stop boards shall be so made as to form a grooved or indented profile to the concrete.

3. Where a construction joint contains a formed surface, that surface shall be roughened to expose the aggregate without damaging the aggregate and the arises of the joint. The roughened surface shall then be washed with clean water to remove loose particles.

4. Where sections of the work are carried out in lifts, the reinforcement projecting above the lift being cast shall be adequately supported so as to prevent movement of the bars during the casting and setting of the concrete.
5. Wherever possible laitance and all loose material shall be removed while the concrete is still green and no further roughening shall then be required. Where this is not possible, it shall be removed by mechanical means after the concrete has been in position for more than 24 hours. The roughened surface shall then be washed with clean water.

515 Precast Concrete

1. The contractor shall provide molds and all other items in connection with the precast concrete work and shall cast, cure, hoist, cut and pin or build in, including bedding and pointing, and in cement and sand mortar (1:4) as shown on the drawings. Precast concrete shall comply with all the requirements of the Specification for concrete.

2. Manufacture of Precast Reinforced Members off the Site

(a) The Director of Works’ approval to the method of manufacture shall be obtained before work is started. When the method has been approved, no changes shall be made without the consent of the Director of Works.

(b) The Contractor shall inform the Director of Works in advance of the date of commencement of manufacture and casting of each type of member.

(d) A copy of all 28 day cube test results relating to the work shall be sent to the Director of Works as soon as they become available.

(e) Where the Director of Works requires tests to be carried out, no members to which the tests relate shall be dispatched to the site until the tests have been satisfactorily completed.

(f) All members shall be indelibly marked to show the Member Mark as described in the contract, the production line on which they were manufactured the date on which the concrete was cast and, if they are of symmetrical section, the face which will be uppermost when the member is in its correct position.

516 Curing Concrete

1. Immediately after compaction and for 7 days thereafter concrete shall be protected from the harmful effects of the weather including rain, rapid temperature changes and from drying out too quickly by being kept covered with sacking or sand, constantly kept moist by spraying with water of by covering with plastic sheeting or by using some other method which minimizes the loss of water from the concrete, such as hessian, chemical spray, liquid membrane forming curing compounds, polyethylene film/sheet …etc.
2. The method of curing used shall be subject to the approval of the Director of Works.

517 Testing Concrete

1. Prescribed Mixes to Table 1
   (a) The weights of cement and aggregate shall be as specified 5±%.
   (b) The workability of the concrete shall be within the following limits: slump-specified value ±25mm or ±1/3 specified value whichever is the greater.

2. Design Mixes to Table 2
   (a) The contractor shall provide concrete cubes and shall have tests under-taken for compressive strength at least two cubes for every transit mixer, or when directed by the Director of Works. The cubes shall be taken at random from batches of concrete after leaving the mixer and under the supervision of the Director of Works.
   (b) All cubes shall be made and tested in concordance with BS 1881-122:2011 and BS 1881-130: 2013.
   (c) The specified strength requirements shall be assumed satisfied if at 28 days only one cube test result strength is 90% of the specified strength and the average of all cubes test results are 110% of the specified strength.

3. If the results of concrete testing failed after 28 days, the Director of Works shall decide removal and replacing of failure concrete member or accept the different types of further action to be taken such as redesign of the member, Strengthen the member, core test or loading test.

518 Expansion Joints

1. Expansion joints shall be formed in the positions shown on the drawings.

2. Expansion joints shall be filled for the full width or depth of the joint with approved expansion joint filler.

3. The exposed edges of expansion joints shall be pointed to a depth of not less than 2cm with approved expansion joint pointing unless otherwise shown on the drawings.
4. The exposed edges to expansion joint covers described under section 10 hereafter, unless otherwise shown on the drawings.

519 Wall Ties

1. Where stone or block walls abut against concrete they shall be tied thereto by means of approved galvanized steel ties or strips of galvanized expanded metal.

2. Ties shall be fixed to the formwork in an approved manner prior to casting the concrete, care being taken to avoid contact with the reinforcement. When the formwork is struck the ties shall be straightened as necessary and built into the bed joints of the wall.

3. Where walls abut against a concrete column one vertical row of ties shall be used for each junction. The vertical spacing shall be every two courses (42cm).

4. Where walls are built as a facing to concrete, ties shall be staggered vertically and horizontally and be spaced at approximately 100cm horizontally and 42cm vertically.
Blockwork

600

Blockwork
601 General

1. Execute and complete the block work in the positions and to the dimensions and sizes shown on the drawings and/or described in the Contract Documents.

602 Materials

1. Blocks

(a) Blocks shall be made in vibrated pressure machines and shall be in general manufactured from cement, aggregates and water. The minimum cement content shall be 200kg cement to 0.46m³ fine aggregate and 0.82m³ coarse aggregate. The specifications given for concrete materials under 500 shall apply equally for block work materials.

(b) The Director of Works may approve on request the use of a different binder to cement, or the use of other aggregate types or grading, provided that there is satisfactory data on the properties of the blocks made from these.

(c) Blocks shall be hard, sound, square and clean with well-defined arises. Where a special face finish is required this shall be as specifies in the Contract Drawings.

(d) Blocks for walling shall be 40cm (3mm) long and 20cm (3mm) high unless otherwise shown on the drawings. The tolerance in thickness shall be (1mm).

(e) Blocks for floor/roof slabs shall be of the shape and dimensions shown on the drawings. The tolerance in length or width shall be 5mm and the tolerance in thickness shall be 3mm.

(f) The design of hollow blocks for walling shall be approved by the Director of works.

(g) Blocks shall be cured for at least three days after manufactures, being kept wet by sprinkling with water.

(h) Block Classification and Testing

(i) Blocks shall be denoted by the block type A, and the minimum average compressive strength.

(ii) Blocks shall be tested for density and compressive strength whenever required by the Director of Works. For each test 10 blocks shall be selected by the Director of Works. The blocks selected shall be immersed
in water for 24 hours before compressive testing and shall not absorb more than 15% of their own weight of water during this period.

(j) The blocks shall comply with the requirements of Table 3.

(i) Should a test not meet these requirements the batch of blocks from which the samples were taken shall not the used in the Works and shall be removed from the site.

<table>
<thead>
<tr>
<th>Block Type</th>
<th>Density</th>
<th>Minimum Average Compressive Strength kg/cm²</th>
<th>Compressive Strength lowest Individual Block kg/cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Not less than 1500 kg/m³</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

Note to Table 3

(i) Block density is the block weight divided by the gross volume (including core space).
(ii) Block compressive strength is the crushing load divided by the gross area (including core space).
(iii) Type A is a concrete block made using natural dense aggregate for use above/below ground.

(k) Cost of the tests shall be borne by the Contractor.

2. Lime

(a) Lime shall be quicklime properly slaked with the minimum amount of water by experienced workmen and shall be left undisturbed for not less than 36 hours.

(b) The slaked lime shall be screened before use to remove all lumps, stones and other impurities.

603 Mortar
(a) For concrete block Minimum Average Compressive Strength 50kg/cm², minimum average strength the mortar used shall be as noted on the drawings and according to the tender documents. The mortar mix shall consist of cement and fine aggregate in the proportion 1:4 by volume.

The Minimum strength of the mortar shall be 10kg/cm² (using 75mm test cubes)

(b) For blocks made with a different binder to cement the mortar used shall be as noted on the drawings or as approved by the Director of Works.

(c) Mixing shall be carried out using mechanical mixer on site or ready mix mortar and put on a close boarded platform or other impervious surface.

(d) Mortar mixed on site shall be used within two hours of mixing. While the ready mix mortar shall be used according to the ready mix company instructions and the approval of the Director of Works.

(e) Manual mixing is not allowed for any type of mortar or concrete.

**604 Workmanship**

1. Blocks shall be soaked in water before laying. The tops of walls, where work has been left off shall be thoroughly wetted before work is recommended.

2. Walls shall be bonded in accordance with best constructional practice or as shown on the drawings. Where required for bond, blocks shall be carefully cut to size.

3. Walls shall be carried up regularly and no portions shall rise more than 1m above adjacent portions. At such changes in levels work shall be raked back.

4. Courses shall be properly leveled. Perpendicular joints, quoins, jambs and angles shall be plumbed as the work proceeds.

5. The gauge for walls shall be ten courses to 210cm unless otherwise shown on the drawings or approved.

6. Blocks shall be spread with mortar before laying and joints shall be solid through the full thickness of the wall. Joints shall be flushed up, or raked out, as the work proceeds.
7. Walls which are to be left unplastered shall be faced with selected blocks, built with a fair face and pointed with a neat flush joint.

8. Walls which are to be plastered shall have the joints raked out to a depth of 15mm.

9. Take out joints for flashing and turn-in of asphalt where required as work proceeds.

605 Strengthened Quoins and Ends

1. The vertical row of air cells nearest the quoin, end or opening, shall be packed solid with concrete mix 100/20 as the work proceeds.

2. Secure door frames and the like in block work with stout, galvanized iron ties in accordance with Clauses 903 and 1003 secured to same and built into the block work as the work proceeds. Including 150mmx20mmx2.5mm galvanized steel wall ties or as specified in the contract documents.

606 Claustra Walling

1. Blocks for claustra walling shall be of a design approved by the Director of Works and shall be of self-finished concrete.

2. The foregoing clause 603 of this Specification shall, where appropriate, apply to claustra walling.

607 Sundries

1. Cut and fit, build in, wedge up, pin or otherwise secure in an approved manner the walls to columns, beams, slabs, steelwork and the like. Clause 519 specifies the method of tying to concrete.

2. Leave or form chases, rebates, openings, holes and the like for all trades and make good.

3. Cut and pin or build in lintels, cramps, plates and the like and make good all to the approval of the Director of Works.

4. Facing work shall be kept clean as the work proceeds.
Stonework

700

Stonework
701 General

1. Execute and complete the stonework in the positions and to the dimensions and sizes shown on the drawings and/or described in the Contract Documents.

702 Materials

1. Stone
   
   (a) Samples of stone before and after dressing shall be submitted to the Director of Works for approval.
   
   (b) Stones shall be hard limestone of even color and texture free from holes and cracks.
   
   (c) The exposed surfaces of stones shall be dressed rock faced and all other surfaces shall be rough hamer dressed. Each face shall be true and square.
   
   (d) Unless otherwise shown on the drawings the length of a stone shall be not less than one and a half times its height.

2. Mortar
   
   (a) Mortar for building stonework shall consist of cement and fine aggregate, mixed in the proportions 1:2 by volume. Mortar for pointing the stone joints shall consist of white cement and sand mixed in the proportions 1:2 by volume including waterproofing material.
   
   (b) The requirement Clause 603 of this Specification shall, except for mortar mixes, apply to mortar for stonework.

703 Workmanship

1. Stones shall be laid level, plumb, square and true. All arises shall be sharp, true to line and square.

2. Stones shall be soaked in water before laying. The tops of walls, where work has been left off, shall be thoroughly wetted before work is recommended.

3. Stones shall be laid with the natural or quarry bed horizontal.
4. Stones shall be laid in regular horizontal courses. The stones in each course shall be of equal height and shall be not less than 25cm and not more than 35cm high.

5. All vertical and horizontal joints in stonework shall be 5mm thick and shall be solid with mortar for the full thickness of the joints.

6. Face joints shall be raked out to a depth of 25mm as the work proceeds.

7. On completion of the stonework the joints shall be pointed. The pointing shall be not less than 20mm thick carried out in one coat. The pointing shall be finished with a curved edged tool leaving a clean sharp, regular joint or flush finished all according to the drawings and contract documents.

8. Stones which have been holed, broken or damaged in any way and broken stones which have been repaired shall not be used in the work.

704 Concrete Backing

1. Stonework shall be built with a concrete mix 300/20 backing. The stonework and concrete backing shall be of the thicknesses shown on the drawing. The concrete backing shall be carried out simultaneously, course by course, with the stonework. The projection of the fixing required under Clause 519 shall be completely embedded in the mortar of the face work.

705 Rubble Stonework

1. This type of work will be used for construction of dry stone boundary walls not exceeding 150cm in height, the average thickness will be as determined in the drawings or as directed by the Director of Works.

2. The stone used should be natural, hard and of various sized but not less than 200mm in any dimension.

3. Mortar not exceeding 10% of the volume of the wall could be used at the request of the Director of Works.

4. The face of the wall shall be laid level plumb

5. The top face shall be horizontal and capped as shown on the Contract Drawings.
Sundries

1. Cut and fit, build in, wedge up, pin or otherwise secure in an approved manner the stonework to beams, slabs, columns, steel work and like. Clause 519 specifies the method of tying to concrete.

2. Leave or form chases, rebates, openings, holes and the like for all trades and make good.

3. Cut and pin or build in lintels, cramps, plates and the like and make good all to the approval of the Director of works.
General

1. Execute all carpentry work shown on the drawings and/or described in the Contract Documents in a proper manner and in accordance with the Specification.

2. Carpentry work shall include all structural timber work, grounds, backings, temporary work and the like.

3. The Contractor is to perform all cutting away and making good in attendance upon all other trades.

4. The Carpenter is to clean out all shavings, cut ends and other timber waste from all parts of the building and remove same from site all to the satisfaction of the Director of Works.

5. All timber shall be hardwood unless otherwise specified.

6. Timber sizes shown on the drawings are finished sizes.

Materials

1. Timber for carpentry work shall be of a species and quality suitable for the purpose for which it is to be used. Structural timber shall be group I or II Structural hardwood in accordance BS EN 1995-1-1:2004+A2:2014.

2. Samples of every type of timber which the Contractor proposes to use in the Works shall be sent to the Director of Works for approval. Each sample shall be labelled and the label shall state the species of the timber and the purpose for which it is to be use.

3. Timber shall be sawn square, straight and true and shall be free from the following defects:

   (a) Splits, ring shakes and soft pitch
   (b) Checks exceeding 30cm long
   (c) Checks Exceeding 1 1/2mm wide.
   (d) Checks more than half the thickness of the timber in depth
   (e) Knots exceeding 3cm mean diameter
   (f) Knots exceeding half the width of the surface
   (g) Decayed dead knots unless cut out and plugged
   (h) Loose knots or knot holes unless cut out and plugged
   (i) Pitch pockets
   (j) Decay and insect attach
4. The timber which is not to receive a preservation treatment is to be seasoned to moisture content of 20% unless otherwise specified.

5. Where preservation treatment is specified in the Contract.

(a) The moisture content of the timber immediately prior to treatment shall not exceed 28 percent and the timber shall be free from surface moisture and dirt. Treatment is to take place after all cutting and shaping is complete, and care must be taken not to damage surfaces of treated timber. If surface damage or cutting after treatment is unavoidable a liberal coating of preservative is to be made to such areas.

(b) The preservative treatment shall be either.

(i) Creosote applied by vacuum/pressure to BS 144:1997, or
(ii) Copper/Chrome Arsenic salts applied by vacuum/pressure.

803. Workmanship

1. Timber shall be left “from the saw”, unless otherwise shown on the drawings, and shall be to the full dimensions shown on the drawings.

2. All framing shall be jointed as shown on the drawings or to the approval of the Director of Works.

3. Joints shall be designed and constructed so that they will transmit the loads and resist the stresses to which they will be subject.

4. Unless otherwise stated joints shall be secured with a sufficient number of nails of an approved type.

5. A butt joint shall be secured, wherever possible, with nails driven from the far side of the flanking number.

6. The joining surfaces of all connections exposed to the weather shall be thickly primed except where adhesives are used.

7. Surfaces shall be in contact over the whole area of the joint before fastenings are applied.

8. No nails, screws, or bolts shall be placed in an end split. If splitting is likely to occur, holes for nails are to be pre-bored at diameters not exceeding four fifths of the diameter of the nail. Clenched nails shall be bent at right angles to the grain. Lead holes shall be bored for screws.
9. Members of structural units shall be clamped and spiked together before drilling bolt holes. Holes for bolts shall be bored from both sides. A tolerance of 1mm will be allowed in positioning bolt holes.

10. Timber connectors, where specified, shall be two single-sided toothed plates for demountable joints and one double-sided toothed plate for permanent joint.

11. Timber shown on the drawings to be plugged shall be properly and securely fixed by means of splayed plugs or expansion bolts.

12. Timber shall not be built into walls or floors unless this is so shown on the drawings when it shall be coated with a wood preservative suitable for the position in which the member is to be incorporated.

13. Every post, stud, beam, binder, joist, rafter and purlin shall extend in one piece between its supports for fixings or shall be jointed in an approved manner to ensure the necessary structural stability.

14. All cantilevers shall be effectually counterbalanced by the other portion of the member or by suitable fixing or by dead loading.

15. The position of joints in wall plates shall be agreed with the Director of Works before the plates are fixed. In general, plates shall be in one continuous length between points of change direction. Joints at corners and in running lengths, where unavoidable, shall be halved.

No plates shall be built into walls of masonry blockwork or concrete. When the plates are supported over, or let into the sides of studs, they shall be fixed to every stud. Where they are laid over bearing walls of masonry blockwork or concrete, they shall be solidly bedded in cement mortar (1:3) to the required level.

16. The anchorage of roof frames, trusses and other structures that need to be secured against displacement, as shown on the Contract Drawings, shall be provided to the approval of the Director of Works by means of extra fittings at all points of support or direct loading.

17. Where joists of support are to be notched over supports, the depth of notches shall not exceed two fifths of the depth of the joists unless otherwise specified. The bearing surface of all notches shall be cut smooth and true in relation to the surface on which it bears.

18. (a) Holes cut in joists or other timber members shall be centered on the neutral axis and shall be limited to one third of the depth of the member. No holes shall be cut without the approval of the Director of Works.

(b) Pipe and cable runs across joists shall be positioned away from the center of the span.
(c) Nothing top, bottom or faces of timber members is not permitted.

19. (a) Plates, joists, rafters, purlins and other members used for roof construction are to be of the sizes specified or as shown in the Contract Drawings and details. The spacing of rafters shall be the same as that used for joists unless otherwise stated.

(b) Overhangs shall be adequately cantilevered and anchored back to the main roof frame without weakening it in any way.

20. (a) All joints in trusses or framework shall be of the most appropriate type, accurately formed and adequately secured with nails unless otherwise specified. The arrangement of the members and the construction of all joints shall be in accordance with the Contract Drawings and this Specification.

(b) Deflection shall not exceed that specified.
901  General
1. Execute and complete all joinery work shown on the drawings and/or described in the Contract Documents in a proper manner and in accordance with this Specification.

2. Joinery work shall include all timber finishing’s, non-structural timber work and all other timber work not included in carpentry work including the supply and fixing of:-

   (a) Metal straps lugs and dowels.

   (b) Priming, preservatives, polishing or such wood finishes as are specified in the Contract Documents.

   (c) All ironmongery specified or shown on the drawings and/or schedules including all screws, nails, plugs, nuts, bolts and other fittings required for the completion of the work.

3. All timber shall be hardwood unless otherwise specified complying with BS EN 942:2007.

4. Timber sizes shown on the drawings are finished sizes unless otherwise stated.

5. The joiner shall clean all joinery work and shall leave the whole of the work in good order and to the complete satisfaction of the Director of Works.

902  Materials
1. Timber for joinery work shall be of a species and quality suitable for the purpose for which it is to be used.

2. Samples of every type of timber which the Contractor proposes to use in the Works shall be sent to the Director of Works for approval. Each sample shall be labelled and the label shall state the species of timber and the purpose for which it is to be used.

3. (a) Timber shall be properly seasoned and shall be sawn square, straight and true.

   (b) The moisture content of the timber used for internal joinery shall not exceed 10% and that for external frames and doors shall not exceed 16%
when the timber is delivered to the site and the figures shall be maintained until the building is finished.

4. Timber shall be free from the following defects:
   (a) Splits, ring shakes and pith wood.
   (b) Sapwood
   (c) Decay and insect attack
   (d) Slope of grain exceeding 1 in 10 for softwoods and exceeding 1 in 5 for hardwoods.
   (e) Checks other than hair checks
   (f) Case hardening and honeycombing
   (g) Boxed heart
   (h) Knots exceeding 2cm mean diameter
   (j) Knots exceeding half the width of the surface
   (k) Knots clusters
   (l) Decayed, dead or loose knots
   (m) Knot holes
   (n) Pitch pockets

5. Plywood
   (a) Plywood shall be of best quality suitable for the purpose for which it is to be used.
       (i) Grade 1 where varnished
       (ii) Grade 2 where painted
       (iii) Grade 3 where hidden
   (b) Samples of plywood shall be sent to the Director of Works for his approval.
   (c) Plywood shall be of a single thickness. The Contractor will not be allowed to make up thicknesses by bonding plywood together.

6. Block board
   (a) Block board shall be built-up board with a core of softwood strips 2cm to 3cm wide glued edge to edge and faced with plywood or other facing as shown on the drawings.
   (b) Samples of block board shall be sent to the Director of Works for his approval.
6. **Laminated Plastic Sheeting**

(a) Laminated plastic sheeting shall be of 3mm minimum thickness and shall have a matt surface finish.

(b) Laminated plastic sheeting shall be first quality available in the local market to the approval of the Director Of works.

(c) Samples of laminated plastic facing shall be sent to the Director of Works for approval of quality, pattern and color.

8. **Ironmongery and Hardware**

(a) Ironmongery and hardware shall be the best quality available. Samples of the ironmongery and hardware items shall be sent to the Director of Works and approval.

(b) Ironmongery and hardware shall be complete with screws of a type, size material and finish to suit the item of ironmongery or hardware which they are fixing.

903. **Workmanship**

1. All timber shall be sawn, planed, drilled or otherwise machined or worked to the sizes and shapes shown on the drawings.

2. All timber that is to be exposed in the finished surfaces shall be finished smooth unless otherwise shown on the drawings.

3. Where a natural finish, finishing for staining, clear polishing or varnishing is shown on the drawings the timber in adjacent pieces shall be matched, uniform and symmetrical in color and grain.

4. The surface finish to timber shall be as shown on the drawings.

5. The arrangement, jointing and fixing of joinery work shall be such that shrinkage in any art or any direction, shall not impair the strength and appearance of the finished work and shall not cause damage to contiguous materials or structures.

6. The joinery shall be constructed exactly as shown on the drawings. Where joints are not specifically indicated they shall be the recognized forms of joints for each position to the approval of the Director of Works.

7. Loose joints shall be used where provision must be made for shrinkage or other movements acting other than in the direction of the stresses of fixing or loading.
8. The joiner shall take all reasonable measures to check or prevent capillary penetration of water in the joints and open connections of external joinery works and in all other positions where joinery works may be exposed to water.

9. Mortices and holes for ironmongery shall be no larger than is necessary for the easy insertion and withdrawal of the ironmongery fitting.

10. Ironmongery shall be fitted and shall be taken off before any painting work is commenced and shall be refixed after all painting operations are complete.

11. Hinges shall be housed or let into doors, windows, frames and the like.

12. Coat Rails

   (a) Coat rails shall be of softwood of the sizes and profiles shown on the drawings.

   (b) Coat rails shall be screwed and countersunk. The screws shall be taken into approved expansion sleeves let into the blockwork or concrete walls.

   (c) Coat rails shall be complete with coat hooks fixed at 40cm centers.

   (d) Coat hooks shall be of 6mm x 2cm galvanized mild steel 16cm girth bent to shape or approved equivalent.

13. Display Board and Blackboard Frames and Panels

   (a) Display board and blackboard frames and chalk trays shall be of hardwood of the sizes and profiles shown on the drawings or equal approved.

   (b) Display board and blackboard frames shall be screwed and countersunk. The screws shall be taken into approved expansion sleeves let into blockwork or concrete walls.

   (c) Chalk trays shall be supported on galvanized mild steel or aluminum brackets as detailed on the drawings. Each bracket shall be fixed after plastering with two screws taken into approved expansion sleeves let into blockwork or concrete walls. Each bracket shall be twice countersunk, drilled and screwed to the chalk tray.

   (d) Display panels shall be approved 12mm thick standard, self-finished fiber insulation board. Display panels shall be fixed to the wall face by frames.
(e) Or Display Board and Blackboard Frames and Panels could be readymade in accordance to the contract documents and the approval of the Director of Works.

14. **External and Internal Doors**

(a) Doors shall be made to the sizes and details on the drawings.

(b) Doors shall be fitted to give a uniform clearance of not more than 3mm all around and shall be hung to the frames or linings.

15. **Frames, Architraves etc.**

(a) Frames, linings, architraves, beads, glazing beads, cover moldings and the like shall be of the sizes, dimensions and profiles shown on the drawings.

(b) Frames and linings to doors other than cupboard doors shall be securely fixed to block or concrete walls by means of galvanized mild steel door cramps 3mm thick, 5cm wide and 20cm girth. The cramps shall be bent at right angles, one leg twice screwed to the frame or lining, and the other leg provided. Cramps shall be built in as the blockwork proceeds and not cut and pinned at a later stage including galvanized sub-frame for doors 2mm thick in accordance to the contract documents and the approval of the Director of Works.

(c) Frames and linings to doors shall be drilled and bolted to concrete to the approval of the Director of Works.

(d) Glazing beads shall be fixed with brass caps and screws at not more than 22.5cm centers.

(e) Or readymade doors as specified in the contract documents and the approval of the Director of Works.

16. **Cupboards** shall be made to the sizes and details shown on the drawings.

17. **Shelving**

(a) All shelving shall, unless otherwise specified, be of 2cm thick block board with hardwood edging glued and pinned to exposed edges. Block board for shelving shall, except where otherwise specified, be covered with plywood on both sides, Laminated Plastic Sheet 3mm thick or varnish finish paint all in accordance to the drawings and contract documents.
18. **Worktops**

(a) The worktops to the classroom cupboard units shall, unless otherwise specified, be of 28mm thick block board faced both sides with plywood, Laminated Plastic Sheeting 3mm thick or varnish finish paint all in according to the drawings and contract documents and with hardwood edging glued and pinned to exposed edges.

19. Drawer units shall be made to the sizes and details shown on the drawings.

20. **Bench**s

(a) The benches in the laboratory shall be of the sizes and dimensions shown on the drawings.

(b) Benches shall be held in place by approved square-section hard neoprene plugs fixed by bolts to approved expansion sleeves let into the concrete floor. One neoprene plug shall be provided for each bench leg all in according to the contract documents.

21. **Windows**

(a) Windows shall be made to the sizes and details shown on the drawings.

(b) Window frames shall be securely fixed in window openings by galvanized mild steel cramps cut and pinned or built in to the surrounding surfaces and fixed by screws to the window frame. The space between the window frame and the surround shall be grouted solid with cement and sand mortar (1:3).

904. **Sundries**

1. On completion of the Works all locks, latches, bolts, catches, hinges and the like shall be cleaned, oiled and tested to the satisfaction of the Director of Works.

2. All keys shall be clearly labelled with plastic tags (5cm x 2cm) securely fixed to the keys, which shall be handed to the Director of Works.

3. Three keys will be required for all locks unless otherwise specified such as master keys.
Metalwork

1000

Metalwork
1001 General

1. Execute and complete all metalwork shown on the drawings and/or described in the Contract Documents in a proper manner and in accordance with the Specification.

1002 Materials

1. Mild Steel

2. Ironmongery and Hardware
   (a) Ironmongery and hardware shall be the best quality available. Samples of the ironmongery and hardware items shall be sent to the Director of Works for approval.
   (b) Ironmongery and hardware shall be complete with screws of a type, size, material and finish to suit the item of ironmongery or hardware which they are fixing.

1003 Workmanship

1. Metalwork shall be fixed complete with all plates, cleats, bolts, anchors, lugs, hardware and ironmongery.

2. Windows shall be manufacture from rolled mild steel sections welded together. Built-up welded sections shall not be used.

3. Finished surfaces of fabricated items shall be ground to a flat, even surface without pitting, holes or other blemishes.

4. Items of steelwork which are to be galvanized shall be galvanized after fabrication by an approved method in accordance with BS729 Part 1.

5. Items of steelwork which are not to be galvanized shall be cleaned of all dust, scale, other impurities and painted as specified under Series 1900 Painting and Decorating in this Specification.
6. The Contractor shall take precaution to minimize exposure of steel awaiting fabrication to chemical pollution.

7. Fabricated steelwork which is stored awaiting erection on site shall be kept clear of the ground and shall be stacked so as to prevent water or dirt accumulating on or against any of the surfaces.

8. **Windows**

   (a) Metal windows shall be of the dimensions, sizes and profiles shown on the drawings

   (b) Windows shall be manufactured from rolled mild steel sections welded together. Built-up welded sections shall not be used.

   (c) Windows shall be securely fixed in window openings either by lugs welded to the window frames and cut and pinned or built into the surrounding surfaces or by screwing the window frames with rust-proof screws to approved expansion sleeves let into the surrounding surfaces. Lugs or screws shall be of the number and in the positions shown on the drawings. The space between the window frame and surrounding surface shall be grouted solid with cement and sand mortar (1:6).

   (d) Glazing beads shall be of mild steel of the sizes and profiles shown on the drawings and shall be fixed to the window with dome headed, rust, proof, self-tapping screws at not more than 22.5cm centres.

9. **Doors**

   (a) Doors and frames shall be of mild steel sheets, sections and profiles welded together to the dimensions and sizes shown on the drawings.

   (b) Frames shall be securely fixed to block walls by means of mild steel cramps 3mm thick, 5cm wide and 20cm girth. The cramps shall be bent into a right angle, one leg welded to the frame and the other leg built into the joint of blockwork. Four cramps per jamb shall be provided. Cramps shall be built in as the blockwork proceeds and not cut and pinned at a later stage.

   (c) Frames shall be drilled and bolted to concrete to the approval of the Director of Works.
10. **Gates**

   (a) Gates shall be of mild steel sections and profiles welded together to the dimensions and sizes shown on the drawings.

   (b) Gates shall be securely hung on brackets as detailed on drawings, built into the supports as work proceeds.

11. **Guard Bars and Screens to Windows**

   (a) Guard bars and the framework of the screens to windows shall be of mild steel sections and profiles welded together to the dimensions and sizes shown on the drawings.

   (b) Guard bars and screens shall be securely fixed to the surrounding surfaces by lugs welded to the frame in the positions shown on the drawings and cut and pinned or built-in, unless otherwise specified.

   (c) Guard bars shall be provided to all external windows of laboratories and multipurpose rooms or where shown on the drawings.

   (d) Screens shall be provided to all external windows on the ground floor unless otherwise detailed on the drawings.

12. (a) Balustrades shall be constructed and erected to the details and the dimensions shown on the drawings and shall be of mild steel sections welded together, unless otherwise specified.

   (b) Vertical supports shall be at maximum 1.5m centers and shall be fixed in an approved manner to the supporting structure.

13. **Curtains**

   (a) Curtain tracks shall be of an approved single-track type with top fixing complete with nylon gliders at 10cm centers and end stops.

   (b) Curtain tracks shall be fixed in the positions shown on the drawings with wood screws to timber pelmets.

14. **Expansion Joint Covers**

   (a) Approved expansion joint covers of the materials and dimensions shown on the drawings shall be provided to expansion joints in floors of corridors
and verandahs with fixings as detailed on the drawings or approved by the Director of Works.

15.  (a) Step rungs, edging to steps, foot scrapers and edging to expansion joints shall be of mild steel to the profiles, dimensions and sizes shown on the drawings.

(b) They shall be securely fixed to the surrounding surfaces by lugs, welded-on in the positions shown and cut and pinned or built-in.

1004 Sundries

1. On completion of the works all locks, latches, bolts, catches, hinges and the like shall be cleaned, oiled and tested to the satisfaction of the Director of Works.

2. All keys shall be clearly labelled with plastic tags (5cm x 2cm) securely fixed to the keys, which shall be handed to the Director of Works.

3. Three keys will be required for all locks unless otherwise specified such as master keys.
1101 General

1. Execute and complete all the plasterwork, in the mixes specified, to the surfaces shown on the drawings.

2. Internal plastering shall be carried out in accordance with BS EN 13914-2:2005.

3. External rendering shall be carried out in accordance with BS EN 13914-1:2005.

1102 Materials

1. (a) Cement and water shall be as specified under Series 500 Concrete Work of this specification.

   (b) Fine aggregate shall be natural sand to the approval of the Director of Works.

2. Lime

   (a) Lime shall be quicklime properly slaked with the minimum amount of water by experienced workmen and shall be left undisturbed for not less than 36 hours.

   (b) The slaked lime shall be screened before use to remove all lumps, stones and other impurities.

1. Metal lathing (such as expanded metal 200mm wide to all chases of electro-mechanical works and to the junctions of blockwork and concrete, stop beads, angle beads, movement beads,…etc.), where used, shall have a minimum weight of 1.2 kg/m² and shall comply with BS EN 13658-1:2005 and BS EN 13658-2:2005.

4. All branded materials shall be delivered to the site in original packings bearing the trade names of the material concerned.

1103 Workmanship

1. General

   (a) All plastering work shall be even and true, and shall provide a smooth, hygienic crack-free surface suited to the application of the specified decorative finish.

   (b) Materials used for plastering work shall be proportioned by volume with approved gauge boxes. Mixing shall be carried out in a mechanical batch.
mixer unless otherwise approved and shall be continued for at least two minutes after the water has been added.

(c) Plastering mixes containing self-setting materials shall be used with-in the recommended working time for the mix concerned.

(d) Mixes containing cement shall be used up within two hours of initial contact with water. All materials remaining after this time shall be discarded.

(e) Materials which have started to set should not retemper.

(f) When mixing sand, lime and cement, the lime and sand shall be mixed first and the cement added thereto.

(g) The amount of water in the mix shall not exceed that which is necessary to give a good, workable mix.

(h) Surfaces to be plastered/rendered shall be cleaned of dust, loose mortar and traces of salt. They shall then be dashed with a wet cement and fine aggregate mix (1:2) to form a key, which should then be allowed to harden before plastering proper begins the other two coats.

(i) Immediately prior to the application of plaster or rendering, surfaces shall be thoroughly wetted and excess water allowed running off.

(k) Plaster thickness shall be as specified in the Contract Documents for individual surfaces.

(l) Undercoats to be plastered or rendered shall be well scratched or scored to form a key. Undercoats shall be allowed to set hard before the application of subsequent coats.

(m) All angles, arises, corners and internal angles on plaster and rendering shall be straight and level or plumb and shall be rounded to a 5mm radius. This shall be deemed to include for furnishing and installing of reinforcing expanded metal 200mm wide to all chases of electro-mechanical works and to the junctions of blockwork and concrete. It shall also include for all stop beads, angle beads, movement beads…etc. all as indicated on the contract drawings and the contract documents.

(n) Plaster, rendering and paving shall be made good up to frames and skirtings and around fittings and pipes.

(p) Undercoats and finishing coats to plaster and render shall be protected from the weather until they have set and shall not be allowed to “dry out”
or “seat out” to the detriment of the surface. They shall be cured by being covered with plastic sheets or sacking which is kept stantly damp for at least seven days after being applied.

2. **Internal Plaster**

(a) Internal plaster shall be applied in two coats. The overall thickness of two coat work internally shall not exceed 15mm.

(b) Internal plaster first coat (rough coat) shall consist of cement and fine aggregate mixed in the proportions:

- 1 part cement
- 4 parts fine aggregate

(c) Internal plaster second coat (final or smooth coat) shall consists of cement, lime and sand mixed in the proportions:

- 1 part cement
- 1 part lime
- 1 part sand

3. **External Render**

(a) **General**

(i) External render shall be applied in two coats of overall thickness not exceeding 20mm. Including waterproof material as specified in the contract documents and to the approval of the Director of Works

(ii) External render first coat (rough coat) shall consist of cement, lime and sand mixed in the following proportions:-

- 1 part cement
- 1 part lime
- 5 parts sand

(iii) External render second coat (final or smooth coat) shall consist of Cement, lime and sand mixed in the following proportions:-

- 2 part cement
- 1 part lime
- 4 part sand
(b) **Tyrolean Finish**

(i) External render shall be applied in one coat of overall thickness not exceeding 15mm wood floated to receive tyrolean finish.

(ii) External render shall consist of cement, lime and sand mixed in the proportions:

- 1 part cement
- 1 part lime
- 5 parts sand

(iii) Machine applied wet dash (Tyrolean) finish shall be applied after hardening of the rendered surface. The mix shall consist of cement and fine aggregate (1: 2) including waterproof material. The color of the finish shall be as shown on the Contract Drawings or as directed by the Director of Works.

4. **Cement and Sand Skirtings**

(a) Cement and sand skirting’s shall be provided to all vertical concrete and blockwork surfaces at which finished floor slabs abut, except for the outer kerbs to verandahs. All as specified in the contract documents.

(b) Cement and sand skirting’s shall consist of cement and sand mixed in the proportions: 1 part cement to 3parts sand.

(c) Skirtings shall be 100mm high and shall be 10mm thicker than the plaster or rendered surface.

(d) Raking skirtings shall be 100mm higher than the lien of the staircase measured at right angles to the nosing.

(e) Skirtings shall be finished with a bulldozed top edge and shall be treated with an approved hardener and dust proofer.

1104. **Sundries**

(a) Clean all floors, skirtings and unpainted wall finishing and leave to the satisfaction of the Director of Works on completion.

Tiling (Including Terrazzo work and Marble work)
1200

Tiling
1201. General

1. Execute and complete all the tiling, terrazzo, porcelain, ceramic, glazed and marble work shown on the drawings and/or described in the Contract Documents all in the manner specified and to the satisfaction of the Director of Works.

2. Wall tiling shall be executed in accordance with BS5385 -1:2009, BS5385 -2:2015 and BS5385 -3:2014 (Code of Practice for wall and floor tiling).

3. Samples showing qualities and colors of tiles, terrazzo, porcelain, ceramic, glazed and marble proposed are to be submitted to the Director of Works for testing and approval prior to commencement of the Works.

1202. Materials

1. Glazed Wall Tiles

   (a) Glazed wall tiles shall be 200mm x 300mm or 250mm x 300mm with 7mm thick, unless otherwise specified in the Contract Documents, approved best quality white glazed ceramic wall tiles not less than 7mm thick in accordance with the requirements of BS EN 14411:2012.

   (b) Angles, edges and junctions with horizontal surfaces shall be made with rounded or purpose made tiles in accordance to the drawings and contract documents.

2. Precast Terrazzo Tiles

   (a) Precast terrazzo tiles shall be approved best quality, manufactured locally in accordance with the requirements of BS EN 13748-1:2004 or BS EN 13748-2:2004.

   (b) Terrazzo finish to tiles shall be not less than 8mm thick and shall be cast integrally with a fine concrete backing.

   (c) Terrazzo floor tiles shall be 300mm X 300mm x 27mm thick unless otherwise specified in the Contract Documents.

   (d) Terrazzo tiles skirting’s shall be 300mm X 70mm X 10mm thick unless otherwise specified in the Contract Documents.
3. Marble where required for bench tops or the like shall be 30mm thick approved local material free from cracks, chipping or other blemishes. Or could be granite type or other type as specified in the contract documents.

4. Resilient floor coverings
   (a) Resilient floor coverings shall be of the best quality available and shall be manufactured in accordance with BS EN ISO 10581:2013.
   (b) Resilient floor coverings shall be of size and type as specified in the contract documents and shall be stuck to steel troweled concrete floor surfaces by means of an approved bituminous or other type adhesive.
   (c) Resilient floor coverings include many different manufactured types/products including linoleum, sheet vinyl, vinyl composition tile (VCT), cork (sheet or tile) and rubber.

5. Glazed clay floor tiles (Ceramic tiles) shall be of through-body color of the sizes and thickness’ specified and shall conform to the requirements of BS EN 14411:2012.

6. Slip resistant flooring-anti-slip flooring
   (b) Slip resistant flooring shall be of size and type as specified in the contract documents.
   (c) Slip resistant flooring include many different manufactured types/products including non slip rough Porcelain tile, ceramic floor tile, terrazzo, mosaic, granite, unglazed tradition tiles, quarry tile, natural stone, matt finish profiled and other stone or mineral surfaces..etc.

7. Sand, cement, fine aggregate and water shall be as specified under Series 500 Concrete work of this Specification.
1. **Glazed Wall Tiling – Internal**

(a) Lay glazed tiles on a cement and fine aggregate backing to a true, vertical face with closed, tight, continuous joints. Joints shall be grouted and pointed in neat white cement; surplus grout shall be cleaned off as the work proceeds. Tiles shall be immersed in water until saturated and all surplus water drained off before bedding.

(b) Backing for tiles shall consist of cement and fine aggregate mixed in the proportions:

- 1 part cement
- 3 parts fine aggregate

(c) The Contractor shall apply the mortar to the back of the tiles and then press them onto the backing. The finished bed shall not exceed 12mm thickness. All as specified in the contract documents and to the instruction of the Director of Works.

(d) Tiles shall be fixed in a regular pattern. In areas, the dimensions of which are not a multiple of the size of the tiles, they shall be carefully cut and fixed so that a margin of equal width is formed on opposite sides of the area.

2. **Glazed Clay Floor Tiles (Ceramic tiles) and Precast Terrazzo Work**

(a) Floor tiles, treads and sills shall be laid to level or prescribed falls onto 20mm mortar beds consisting of 1 part cement and 3 parts fine aggregate. Base concrete should be clean and well wetted before placing the bedding. Before bedding, the back of the tiles shall be coated with neat cement slurry; the bedding shall support them over their whole area. Tiles shall be laid with straight, continuous joints and shall be grouted and pointed after laying, with mortar of the same mix. Terrazzo floor tiling shall be machine polished to a level, true and even surface after the pointing is completed.

(b) Tile skirtings shall be bedded, jointed and pointed with mortar as for the floor tiles, but the bedding shall not exceed 10mm thickness. Skirting joints shall line up with the joints in the floor tiles and shall be grouted and pointed after laying. Terrazzo tile skirtings shall be hand polished to produce a true and even surface after the pointing is completed. Tile skirting’s shall be provided to all vertical concrete and blockwork surfaces against which the floor tiling abuts.
(c) Precast terrazzo door sills shall be cast to the profiles and dimensions shown on the drawings. The terrazzo finish shall be continued on all exposed surfaces. All exposed arises shall be continued on all exposed surfaces. All exposed arises shall be slightly rounded. Each sill shall be provided with two 10mm diameter copper drain tubes cast into the sill as shown on the drawings. Precast terrazzo door thresholds shall be provided to all external doors of rooms that have terrazzo floor finish unless otherwise noted on the Contract Documents. Alternatively, Polished cut stone can be used all as specified in the contract documents.

(d) (i) Terrazzo stair slabs are to be precast terrazzo slabs 50mm thick including not less than 10mm thick terrazzo finish cast integrally with the concrete backing. Alternatively, Polished cut stone or granite can be used all as specified in the contract documents.

(ii) Pre-formed skirting pieces for stairs shall be not less than 15mm thick and shall be provided at each side of stairs.

(iii) Where terrazzo handrails for staircase balustrades are specified they shall be not less than 20mm thick and shall be cast in sections providing neat joints.

(e) Precast terrazzo worktops shall be 40mm thick and shall be cast with openings for sinks and the like. The terrazzo finish shall be continued on all exposed surfaces and around the edges of openings. All exposed arises shall be slightly rounded. The worktops shall be bedded in cement and sand mortar (1:3) on bearer walls. Alternatively, Polished cut stone, marble and granite can be used all as specified in the contract documents.

3. Resilient floor coverings

(a) Resilient floor coverings shall be laid by approved specialist contractors, to provide a continuous, uninterrupted floor finish.

(b) On completion of the work the entire surface is to be cleaned to the satisfaction of the Director of Works.

(c) Surfaces to receive resilient floor coverings shall be cleaned of dust and loose mortar. Laying of resilient floor coverings will not be permitted on concrete surfaces which are not thoroughly dried out and free of moisture.

4. Marble Bench Tops
(a) Marble or granite bench tops, where required, shall be 30mm thick and shall be bedded in cement/sand mortar (1:3) on block wall supports.

(b) Slabs are to be cut true to shape and shall have openings for sinks and the like where shown in the Contract Documents. All exposed arisés shall be rounded and the whole surface must be cleaned and polished before handing over to the Agency.

1204 Sundries

1. All finishes shall be cleaned with soap solution free from any acid or alkali before handing over to the Director of Works.
Paving

1300

Paving
1301. **General**

1. Execute all paving work shown on the drawings and/or described in the Contract Documents in accordance with this Specification and to the approval of the Director of Works.

2. Paving work shall include:

   (a) The laying of unsuspended reinforced concrete ground floor slabs, including hardcore or base course.

   (b) The finish of such unsuspended ground floor slabs or of suspended reinforced concrete slabs with fine concrete paving screeds where these are specified in the Contract Documents.

   (c) The laying of precast concrete paving flags.

   (d) Treating all concrete floors with hardener etc.

1302 **Materials**

1. Hardcore shall be as specified under Series 400 Excavation, Earthworks and Site Work of this Specification.

2. Sand, coarse aggregate, cement and water shall be specified under Series 500 Concrete Work of this Specification.

3. Precast concrete flags shall comply with the requirements of BS EN 1339:2003 and, unless otherwise indicated, shall be 500mm x 500mm x60mm overall size.

2. Steel reinforcement shall be as specified under Series 506.

1303 **Workmanship**

1. Materials shall be proportional by volume with approved gauge boxes. Mixing shall be carried out in a mechanical batch mixer unless otherwise approved. Mixing shall continue for at least 2 minutes after the water has been added.

2. Concrete mix 300/20 shall be used for unsuspended ground slabs unless otherwise stated and shall be as specified under Series 500 Concrete Work of this Specification.
3  **Concrete Slabs**  
(a) Concrete ground slabs shall be laid on polythene sheet (0.3mm thick) over 15cm compacted thickness granular fill in accordance with Clause 407. Slabs shall be laid in bays not greater than 5m x 5m square cast alternately within frames of planned shuttering unless otherwise stated. Slabs shall be cured for not less than 7 days in accordance with Series 500 Concrete Work of this Specification.

(b) Unless otherwise specified or directed the surface of unsuspended concrete slabs shall be given a steel trowel finish in accordance with Series 500 Concrete Work of this Specification.

(c) Where terrazzo floor covering or screed is specified, the surface of slab shall be finished in accordance with Clause 513.1.

4.  
(a) Provide and lay precast concrete flags to the areas shown in the drawing or where directed by the Director of Works on and including a bed of cement and fine aggregate mortar in the proportion 1:3 by volume.

(b) Grout-up with cement/sand mortar tinted as appropriate to match color of slabs and brush well in.

5.  **Cement Screed**  
(a) Lay a screed in sand and cement consisting of 1 part cement and 3 parts sand to concrete surface as shown on the Contract Drawings.

(b) Screed to freshly lay concrete  
Lay a 20mm minimum thickness screed in bays not exceeding 30m2. This screed shall be laid within 3 hours of casting the slab or else screening shall be considered the screening of mature concrete.

(c) Screening to mature concrete:  
(i) The surface of the slab shall be thoroughly roughened to expose the coarse aggregate cleaned and watered and then treated with cement slurry immediately prior to screeding.

(ii) Lay a 40mm minimum screed in bays not exceeding 15m2.

(d) Screeds shall be finished with a steel trowel to produce a smooth firm even surface free from trowel marks.
(e) All paving shall be truly horizontal and the joints between the bays shall be in straight lines cut accurately and neatly at right angles filled with a felt paper of approved pattern and thickness to the full depth of the concrete.

(f) Screeds are to be cured for not less than 7 days after casting in accordance with Series 500 Concrete Works.

(g) No moisture-sensitive floor finish shall be laid unless an approved moisture test shows that the screed is sufficiently dry to receive it.

1304 Sundries

1. (a) All concrete floors finish shall be treated with a liquid hardener and dust Proofer unless otherwise stated.

(b) The hardener and dust proofer shall be as specified in the contract documents.

(c) The hardener and dust proofer shall be applied strictly to the manufactures instructions.

2 Clean all surfaces to the approval of the Director of Works before handing over to the Agency.

**INTERLOCK BLOCK PAVERS**

1305 GENERAL

The work shall consist of the construction of Interlock Block Pavers in accordance with Specifications, Drawings and the Director of Works.

Precast Interlock Block Pavers shall be formed by homogeneous elements 6 cm (6mm top surface layer + 54mm lower base layer) thickness to be used in sidewalk and 8 cm (6mm top surface layer + 74mm lower base layer) thickness to be used in drive way.

The maximum dimension deviations from the stated work sizes for Interlock Block Pavers as follows:

- Length ± 2mm.
- Width ± 2mm.
- Thickness of top surface layer ± 1 mm.
- Thickness of lower base layer ± 2 mm.

The finished product shall be of solid appearance with clean face, be free of segregation, honeycombing and no evidence of internal rendering.
1306 MATERIAL

Materials shall be conforming to the requirements of BS EN1338:2003 and BS 7533-3:2005+A1:2009 unless otherwise specified. The aggregate used shall be of two different types of natural crushed aggregates conforming to the appropriate British Standard.

The interlock block pavers shall consist of two layers. The first is the surface layer which shall be formed as an integral part of block and will be of black basalt aggregates with thickness of (6mm ± 1mm). If the sample fails to meet this thickness (6mm ± 1mm), interlock pavers shall be rejected. The lower layer will be of common type aggregates used for concrete works with suitable size. Retarding, colour and any admixtures shall not have adverse effect on properties of Interlock Block Pavers.

Interlock Block Pavers shall be made using one or more of binders conforming to the appropriate British Standards. The Contractor shall submit samples of various types of Interlock Block Paver for approval of colour and shape by the Director of Works prior to commencing the Work.

1307 Workmanship and Construction

Interlock Block Pavers shall be set on to locations and grades shown on the Drawings and shall be laid directly on a granular material. Granular material shall be placed on the top of a crushed aggregate base course layer to adjust the final level of the Interlock Block Pavers and to fill the joints between the Blocks.

All Interlock Block Pavers shall be thoroughly cleaned of all extraneous material prior to approval. All Interlock Block Pavers shall be laid within a tolerance of plus or minus three (3) millimetres, at each end of an element, to the lines and grades given on the Drawings. All spaces between Interlock Block Pavers shall be filled with clean sand.

All Interlock Block Pavers shall be compacted by a compactor plate to the satisfaction of the Director of Works. No interlock block pavers are to be paved during heavy rains.

1308 Testing and Acceptance

a) Compressive Strength Test

Test shall be carried out on Interlock Block Pavers to ascertain the strength.

Before laying Interlock Block Pavers, 16 samples shall be collected; each 2 sample shall represent 5000 blocks. All samples shall be stored for (24 ± 4) h in water maintained at temperature of (20 ± 5) C°. The average compressive strength of 16 samples shall be not less than 490 kg/cm² and crushing strength of any individual block shall not be less than 400 kg/cm². If the sample fails to meet strength limit, the interlock pavers shall be rejected.
b) **Abrasion Test**

Test shall be carried out to ascertain surface requirement in accordance to BS EN 1338:2003 using Bohme abrasion machine according to DIN 52108 with natural abrasion material or artificial Corundum.

The average Abrasion of 16 samples shall not exceed 5 mm and not exceed 6mm for each individual sample after 440 revolution of abrasion machine. If the sample fails to meet the abrasion limit, the interlock pavers shall be rejected.
Drainage

1400

Sewerage
1401. **General**

1. All Sewerage work shall conform to the regulation by-laws or other statutory controls of the area in which carried out.

2. All existing pipes, ducts, cables, manholes, gullies, storm water inlets and other services exposed in the execution of the Sewerage work shall be effectively supported, protected, and, where necessary, made good to the satisfaction of the Director of Works/Local Authority.

3. For connection to existing sewer give notice to the local authority. Take up paving and roadway, open in existing manholes, divert existing flow to facilitate connection works, excavate trenches, connect new system with existing, backfill and make good to the satisfaction of the Director of Works/Local Authority.

4. (a) Sewerage pipes will be generally specified in Unplasticised P.V.C. (U.P.V.C.) where this is not available, acceptable alternative materials are concrete pipes.

   (b) Flexible joints shall mean joints made with deformable rings or gaskets held between pipe spigots and sockets, sleeves or collars.

   (c) Flexible joints shall be obtained from the pipe supplier and shall be used according to the manufacturer’s instructions.

5. Samples of the proposed materials shall be a proved by and deposited with the Director of Works.

6. The excavations shall be kept free from water by pumping, bailing or other approved means.

7. The Contractor shall use shuttering, tight sheeting, skeleton sheeting, stay bracing, trench jacks or a trench shield or box to support the trench during pipes laying.

8. The use of explosives is strictly forbidden without the approval of the Director of Works. See also Series 400 Excavation, Earthworks and Site Work of this Specification.

1402 **Materials/Joints**

1. Pipe bends and junctions are to be in U.P.V.C. complying with BS EN 13598-1:2010. These shall be supplied with flexible joints.

2. Concrete drain pipes shall, unless otherwise described, by cylindrical pipes with spigot and socket ends, all complying with the requirements of BS 5911-1:2002+A2: 2010 and BS 5911-3: 2010+A1: 2014 standard class. These pipes
shall be supplied with flexible joints. If the precast reinforced concrete pipes were requested to be internally lined with polyethylene, a High-Density Polyethylene (HDPE) sheet shall be used with at least 3mm thick with projecting studs back that key into internal pipe surface. Sheets of HDPE shall be butt-welded to form a barrel shape to be monolithically cast with concrete. All polyethylene lining sheets shall be sealed at both ends with butt-welding before installation.

If it is required to use a piece of a pipe, mechanical sawing machine should be used such that the piece has the same requirements of a whole pipe. No hammering or chiselling is allowed.

3. Yard gullies shall be cast iron 300mm diameter inside, a minimum depth of 600mm, an outlet of 150mm diameter complete with galvanized perforated bucket, and heavy duty cast iron grating and be jointed to drains all set in bed of concrete mix 200/20. Or as specified in the contract documents and the approval of the Director of Works.

4. Cement, sand and steel reinforcement shall be as described under Series 500 Concrete Work of this Specification.

5. Blockwork shall be as described under Series 600 blockwork of this Specification.

1403 Workmanship

1. (a) Excavations for Sewerage trenches, manholes and the like shall be to straight lines and to the correct depths and gradients required for pipes and beds as specified on the Contract Drawings and sufficient width to ensure adequate working space.

(b) Sides and bottoms of trenches shall be trimmed and squared.

(c) Trenches shall be supported, in the manner selected by the Contractor, to ensure safety and the speedy execution of the work.

(d) In the event of excavations being made deeper than specified, they shall be made up to the correct level with lean mix concrete (1:8) at the Contractor’s expense.

(e) Turf and top soil shall be set to one side for re-use at the discretion of the Director of Works.

2. Grade bottom of trench and fill 150mm below invert level for the full width with sand.

3. Lay pipes on prepared solid bedding in straight lengths with joints facing the direction of flow to true gradient and laid so that each pipe is in contact with the
bed for the whole length of its barrel. The bed shall be cut away at each socket to give a clearance of at least 50mm so that the socket does not bear on the bed.

4. No drain shall be covered up before it has been tested and approved by the Director of Works. After all tests have been carried out, fill in with sand up to 150mm above the top of the pipe for the full width of the pipe for flexible pipes (plastic). For rigid pipes (concrete) the sand filling shall extend to 300mm above the top of the pipe.

5. Fill in to ground level in layers not exceeding 150mm compacted thickness with base course or imported granular fill in according to the contract documents and approval of the Director of Works.

6. (a) Solid and waste drains under buildings shall be carried out in UPVC pipe bedded in 200/20 concrete to a depth of 150mm under the drain invert.

   (d) After testing fill in and tamp round pipe to the full width of the trench with 200/20 concrete to a level 150mm over the upper level of the pipework.

   (c) Fill in remainder as described in Clause 1403.5.

7. (a) Connect sanitary fittings and gullies to manholes or vent stacks with soil and waste pipes of the sizes and in the materials specified.

   (b) Solid and waste pipe shall be of the same diameter as the outlet to the sanitary fittings or gullies.

8. Dispose of surplus excavated material from the site and reinstate surfacing of pavings and roadway to the approval of the Director of Works.

9. Provide all necessary planking, strutting, watching, lighting, temporary barriers etc. as shall be deemed necessary by the Local Authority.

10. Vent the head of the drain where indicated on the drawings with 75mm diameter vent pipe all as described above and in according to the contract documents.

11. Supply and fix all junctions, bends, reducing pieces, rodding eyes and sleeves as are shown on the drawings or are considered necessary by the Director of Works for the execution of the Work.

12. Pipe Sleeves

   (a) Wherever pipes pass through blockwork or concrete they shall be provided with sleeves of the same material as the pipe.
(b) The internal diameter of the sleeve shall be at least 1cm more than the external diameter of the pipe and the length of the sleeve shall be the same as the thickness of the blockwork or concrete plus surface finishes through which the pipe passes.

(c) The space between the pipe and the sleeve shall be packed with rock wool or an approved non-hardening compound.

1404. **Connection to Sewer**

1. Provide and fix saddle piece and lay drain in the diameters and materials specified to the falls indicated on the drawings all on a granular bed as previously described in Clause 1401.3 above.

1405 **Manholes**

1. Excavate, return, fill and ram; dispose of surplus material; prepare bottoms and support sides for construction of manholes all as described in Clause 1403 of this Specification.

2. From the base slab to manhole with concrete mix reinforced concrete 250/20 200mm thick, the slab to finish flush with the external face of the manhole wall.

3. Build the walls of the chamber in reinforce concrete 250/20 200mm thick and 200mm thick reinforced concrete 250/20 manhole cover slab and in according to the contract documents.

Provide and lay in the bottoms of manholes, unless otherwise specified, half-round U.P.V.C. main invert channels of the same diameter as the drains with all necessary curves and tapers.

4. Provide and lay half-round U.P.V.C. branch channel bend curved in the direction of flow and set to discharge over main channel.

5. Bench up the channels with concrete mix 200/20 rising vertically from the edge of the channel to a height not less than the soffit of the out-going drain and sloping upwards to meet the side of the chamber at a gradient of approx. 1 in 6. Float the benching to a smooth, hard surface with a coat of cement mortar 1:1. All cement used for benching shall be Sulphate Resisting Type.

6. Build in the ends of drain pipes.

7. Manhole covers and frames shall be either:
(a) Heavy Duty Cast iron or cast steel in accordance with BS EN 124-1: 2015 and BS and EN 124-2: 2015. The frames shall be set in 1:3 cement, sand mortar, or

(b) Precast reinforced concrete mix 250/20 all in accordance with Series 500 Concrete Work of this Specification, as shown on the Contract Drawings.

8. Manhole sizes shall be in accordance with contract drawings and contract documents.

9. Manholes shall be watertight on completion. Alternatively, readymade circular manhole can be used all as specified in the contract documents.

1406. Drawing(s)

1. (a) Where shop drawings are required, this will be stated in the invitation to tender.

(b) Shop drawings shall be submitted when required to the Director of Works before the commencement of the Sewerage work.

(c) On completion of the Works the Contractor shall provide the Director of Works with “as-built” drawings showing the exact location and sizes of all pipes, branches, manholes and the like to the approval of the Director of Works.

1407. Testing

1. The Contractor shall carry out all tests necessary to ensure the satisfactory functioning of the Sewerage system. Any section not passing any of the test shall have the defects made good and shall be retested.

2. All foul sewers, drains and surface water drains shall be tested as directed by the Director of Works, in sections, e.g. between manholes, before the pipes are covered, by means of either the air test described below or by the water test described below. Before testing, the ends of the pipeline to be tested, including those of short branches, shall be plugged and sealed to the satisfaction of the Director of Works. Any section not passing any of the tests shall have the defects made good and shall be retested, using either of the alternative tests given below as directed by the Director of Works.

3. For the air test, air shall be pumped in by suitable means until a pressure of 100mm head of water is indicated in a U-tube connected to the system. The air pressure shall not fall to less than 75mm head of water during a period of 5 minutes without further pumping, after an initial period to allow stabilization.
Drains with traps shall be tested to 50mm head of water and the permissible loss shall then be no more than 13mm head of water in 5 minutes after the initial stabilizing period.

4. For the water test, the pipes shall be filled with water under a head of not less than 1.2m above the crown of the pipe at the high end and not more than 2.4m above the pipe at the low end. Steeply graded pipelines shall be tested in sections so that the above maximum shall not be exceeded. Unless otherwise agreed by the Director of Works, the test shall commence one hour after filling the test section at which time the level to water at the vertical feed pipe shall be made up to produce the required 1.2m minimum test head. The loss of water over a 30 minute period shall be measured by adding water at regular 10 minute intervals to maintain the original water level and recording the amounts so added. The drain will have passed the test if the volume of water added does not exceed 0.12 liters per hour per 100 linear meters of drain per mm of nominal internal diameter.

5. All drains and service ducts less than 350mm diameter shall be checked by drawing through each completed length of pipe a smooth ball 12mm less than the pipe diameter unless an alternative method of checking is agreed by the Director of Works.

6. On completion of the works, or earlier if the Director of Works agrees, all manholes and drains shall be flushed from end to end with water and left clean and free from obstructions.

7. Manholes shall be tested for water tightness on completion by filling them with water and observing any subsidence in water level.

1408 Sundries

1. The Contractor shall take all precautions to prevent the entry into the drains or sewers of builders’ debris, cement slurry and plaster washings.

1409 Certificates

1. Copies of all certificates of acceptance of drains or drain connections issued by the Local Authority shall be given to the Director of Works prior to the handing over of the Works.
Asphalting

1500

Asphalting
1501. **General**

1. Lay asphalt as hereinafter described on prepared surfaces indicated on the drawings, to the prescribed falls.

1502. **Materials**

1. Asphalt for paving or playground asphalt base course (dense bitumen macadam course) and wearing course shall be in one coat work of Fine Hot Asphalt with the aggregate, laid to produce a smooth surface all in accordance with BS EN 13108-1:2006, BS EN 13108-7:2006 and BS EN 12591: 2009.

2. Asphalt for roofing purposes shall be bitumen polymer membrane with chipping in accordance with ASTM D6222 and ASTM D6223.


5. Sand, cement and water shall be as described in Series 500 Concrete Work.

1503. **Workmanship**

1. **Paving and playground areas**

   (a) Excavate for, provide and lay on edge 300mm high x 150mm wide precast concrete edging (curbstone), top to be level with finished level of playing area/paved area, on 150mm bed concrete class 200/20 hunched up at outside edge to within 75mm of top. Bed joint and point in cement, sand mortar 1:3 backfill and make good surrounding levels.

   (b) Provide and lay 150mm compacted hardcore, crushed aggregate or base coarse as specified in the Contract Documents, using the required rollers to the approval of the Director of Works. Degree of compaction shall not be less than 96% of the maximum density

   (c) Provide and lay asphalt paving in one coat work (layer) of 70mm compacted overall thickness, using hot asphalt mix 3/8” maximum aggregate and asphalt bitumen (80/100) heated to the temperature specified by the manufacturer, asphalt at rate of 55kg/ton. Include of one prime coat of liquid (MCO) at the rate of 2 kg/m2, ramming, leveling and compacting the hot asphalt mix using the required rollers to the approval
of the Director of Works with a minimum compaction of 98% of the control strip density, laid to falls and cross-falls. All in accordance to the detail drawings, the contract documents and to the Director of Works approval.

2. **Roofing**

   (a) Provide and lay one layer bitumen polymer membrane with chipping (Mineral slate granules layer) 5mm thick Minimum and 5 kg/m2 minimum weight per square metre, including priming ""GS/474" 500(gr/m2), dressing into rainwater outlets to form waterproof seal as specified in the contract documents and the approval of the Director of Works.

   (b) Rake out joints in vertical walls to receive joint filler components. From chase, 25mm x 25mm with splayed bottom edge, to receive the top edge of the upstand.

   (c) At all junctions of roof coverings with parapet walls stacks etc., provide one layer bitumen polymer membrane with chipping skirting as specified in the contract documents and the approval of the Director of Works.

   (d) Execute all required angles, fair ends etc., and from a proper fillet at all internal angles.

   (e) Finish at open edges of flat roofs with a mastic asphalt apron taken 150mm down the fascia or as specified in the contract documents and the approval of the Director of Works.

   (f) Properly dresses all pipes and outlets on the roof with a special rubber sealant including caps. All shall be in according to the detail drawings, the contract documents and to the Director of Works approval.

1504 **Sundries**

1. Storage of materials on finished asphalt work is strictly forbidden.
Roofing

1600

Roofing
1601. General

1. Cover the whole of the roofs indicated on the drawings with the tiles/sheeting hereinafter described to the prescribed pitches all according to specification and to the satisfaction of the Director of Works.

1602. Materials

1. Roof tiles

(a) Where roof tiles are specified they shall be concrete tiles from the best quality in the local market conforming to BS EN 1304:2013, BS EN 490:2011 and BS EN 491:2011.

(b) Ridge pieces or other special tiles for eaves verges or the like shall be of the same material and quality as above and shall be from the same supplier or as specified in the contract documents.

2. Timber for battens shall be sawn softwood pressure impregnated with creosote in accordance with BS 144:1997 unless otherwise specified or directed.

3. Nails for tiling or securing battens shall be of copper, aluminum alloy, zinc or galvanized wire to BS 5534:2014+A1:2015. Nails subject to corrosion will not be permitted.

4. Sarking felt where specified shall be aluminum foil-faced reinforced copolymer felt complying with the requirements of BS EN13707: 2013 laid parallel to the ridge with 150mm side laps

5. Mortar for bedding plain tiling shall be cement: fine aggregate mix 1: 3 mix of proportions by volume and pointing plain tiling shall be cement: sand 1: 2 mix of proportions by volume.

6. Profiled galvanized steel sheeting shall comply with the requirements of BS 3083:1988.

7. Fixing for profiled sheeting shall be in accordance with BS EN ISO 1479: 2011.
1603 Workmanship

1. Tiling

(a) Supply and fix roofing tiles to the roof surfaces indicated on the drawings. Each tile in every 3rd course and the 2 end tiles in every course adjacent to verges, valleys, abutments and hips shall be twice nailed to softwood battens 50mm x 25mm overall. The dimensions from center to center of battens shall be length of tile – lap. The lap shall be not less than 70mm assuming a pitch of not less than 400 and shall not exceed one-third of the length of the tiles.

(b) Eaves shall have a proper under tile course size 165mm x 165mm minimum overall each tile twice nailed to battens. Both eaves courses are to overhang by 50mm unless otherwise specified.

(c) Verge tiling shall be tilted to prevent dripping. Form under cloak with plain tiles bedded in mortar onto gable wall. Verge tiles to be similarly bedded on under cloak and the whole pointed in cement, lime and sand mortar cut back 6mm. Bedding shall be carried out in “tile-and-a-half” tiles and no cut tiles will be allowed.

(d) The top course of tiles at ridges shall maintain the gauge without cutting. Ridge-tiles shall be carefully bedded on to the top course and fully bedded at joints and pointed in mortar as described above with a neat, flush joint. Open ends at gables to be filled with pieces of cut tile bedded and pointed in mortar as above.

(e) At abutments carry out all necessary cutting and fitting and fix only soakers supplied by others. No tiles shall be cut so that it is reduced in width at any part to less than its full length. “Tile-and-half” tiles shall be used where possible at abutments to retain bonding.

2. Sheeting

(a) Supply and fix corrugated roofing sheets to purlins, all to the pitches shown in the drawings.

(b) Laps shall be in accordance with the suppliers’ recommendations.

(c) Holes for hook bolts at other fixings shall be pre-drilled at the highest point of the corrugations/profiles, at every third corrugation/profile unless otherwise recommended by the manufacturer.
(d) Seam fixings for side laps are required at 400mm centers on galvanized steel sheeting.

(e) All fixings which penetrate the sheeting shall be made watertight by means of washers, all to the manufacturer’s recommendation.

(f) Supply and fix ridge-piece, end-closers, eaves-closers and all accessories necessary for the execution of the Work.

1604 Sundries

1. Storage of materials on the finished roofing is strictly forbidden.
1700

Plumbing
1701 General

1. Execute all plumbing work shown on the drawings and/or described in the Contract Documents all in accordance with this Specification and to the satisfaction of the Director of Works.

2. The plumbing work shall include all internal sewerage pipes and fittings, rainwater disposal, water supply distribution system and sanitary appliance with all necessary plumbing fittings.

3. Soil and waste disposal shall be effectual by means of a “one pipe” system unless otherwise specified. Traps shall have a water seal of 50mm for W.C.’s and piping above 50mm diameter and 75mm for pipes below 50mm diameter. All branches shall be ventilated into a ventilating stack.

1702 Materials

1. (a) Rainwater pipes and gutters shall, unless otherwise stated, be in U.P.V.C., complying with BS EN 12200-1:2000, BS EN 607:2004 and BS EN 1462:2004. Downpipes shall have push-fit joints and all branches, offsets, heads, shoes, etc. shall be in the same material and by the same manufacturer.

   (b) Balcony and roof outlets shall be of approved type, fitted with circular heavy duty gratings. The diameter of the gratings shall be twice the diameter of the pipe. Each grating shall be secured to the outlet with two countersunk non-corrosive screws.

2. (a) Soil waste and vent pipes including fittings and accessories shall generally be in U.P.V.C. in accordance with BS 4514:2001 and BS EN 1329-1:2014.

   (b) Acceptable alternative material for (a) above are: Galvanized Steel to BS EN 10255:2004 and BS EN 10241:2000

3. (a) Water supply/distribution pipes shall generally be in seamless steel tubing galvanized internally and externally with screwed and socketed joints, all in accordance with BS EN 10241:2000 and BS EN 10255:2004.

5:2011 may be used for cold water services.

(b) Galvanized steel pipes and galvanized malleable iron fittings shall be put together with screwed joints. All threading shall be executed with sharp dies. Pipe ends shall be reamed out to a slightly larger diameter before assembly. Joints shall be put together with and approved jointing compound; oakum, string or other fiber shall not be used in joints. All joints, junctions, bends in the water supply and distribution pipework shall be made up welded assemblies shall not be allowed.

(c) Galvanized steel pipes and fittings shall be fixed at least 20mm clear of the face of walls and soffits by means of approved, two-piece holder bats at not more than 1500mm centers. Saddle-type pipe clips shall not be used.

4. Water storage tanks shall be of glass fiber reinforced polythene or polypropylene of approved manufacture, in accordance with BS 4213:2004 and BS EN 13280:2001. Water storage tanks shall be of 1.00m³, 1.5m³ or 2 m³ capacity and shall be supplied complete with polythene ball valves, overflows, covers, under tray, all inlets and outlets connections, and distribution pipe including all required fittings and accessories to put water storage tanks in service.

Alternative materials acceptable for water storage tanks are:

5.

(a) Sanitary appliances shall be in glazed white fireclay or as specified in the contract documents or other equal approved by the Director of Works.

(b) High level W.C. suite shall be pedestal type wash down pan as specified in the contract documents or other equal approved by the Director of Works. and shall include plastic flushing cistern with brackets, flushing mechanism, and ball valve and pull chain. W.C.suite shall be delivered complete with plastic seat and cover by same specified type.

(c) Squat type W.C. pans shall be as specified in the contract documents or other equal approved by the Director of Works. complete with plastic flushing cistern, wall brackets, flushing mechanism, ball valve and pull chain by same specified typ.

(d) Lavatory Basins shall be white glazed fireclay size not less than 555mm X 410mm overall, complete with waste fitting, siphon, trap, plug and chain, chromium plated gear water mixer, 1/2” pillar tap, all associated water
supply pipework, waste to slab level, and including brackets screwed to concrete or blockwork, sealing joint to worktop or wall with mastic sealant. All in according to the contract documents and the Director of Works instructions.

(e) White glazed fireclay sinks shall be not less than 610mm x 405mm x 255mm as specified in the contract documents or other equal approved by the Director Of Works, complete with waste fitting, siphon, trap, plug and chain, chromium plated gear water mixer, 1/2" pillar tap, all associated water supply pipework, waste to slab level, on and including brackets screwed to concrete or blockwork, sealing joint to worktop or wall with mastic sealant.

(f) Polypropylene sinks shall be not less than 540mm x 380mm x 210mm, and shall include brackets, waste fitting, trap and standing waste overflow by the same manufacturer. or as specified in the contract document or other equal approved by the Director of Works.

(g) Wall hung urinal bowls shall be in white glazed fireclay as specified in the contract documents or other equal approved by the Director of Works, complete with grating, waste fitting, trap and automatic flushing valve, all by same specified type.

(h) Automatic flushing tanks shall include flush pipe and automatic syphon set to discharge every 10 minutes or as specified in the contract documents.

(j) Urinal traps and trapped gullies shall be approved U.P.V.C. with back or side inlets as required and 100mm diameter outlet. Where necessary, the gullies shall be provided with approved raising-piece complete with chromium plated brass grating fixed securely with 2 countersunk screws,

(ii) Gullies and raising-pieces shall be bedded on 100/20 concrete 150mm thick.

(k) Bib taps in latrine areas and at water points shall be brass with easy-clean shields or as specified in the contract documents.

(l) Stop valves shall be solid brass with wheel head or as specified in the contract documents.

(m) Mirrors, where specified, shall be approved high quality size 60cm x 60cm chamfered all edges, fixed with 4 number chromium plated dome headed screws and rubber washers to concrete or blockwork.
1703 Workmanship

1. Rainwater pipes and gutters
   (a) Supply and fix U.P.V.C. rainwater downpipes shown on the Contract Drawings to concrete columns/blockwork by means of pipe brackets (screwed-to-wall) at not greater than 2.00m centers with rustproof screws with additional brackets at her, connectors, branches and head.
   (b) Supply and fix heads, branches connectors and shoes as shown in the Contract Documents.
   (c) Connect all roof and balcony outlets to main downpipe.
   (d) Supply and fix U.P.V.C. eaves gutters in the positions shown on the drawings. Gutters to be complete with all necessary angles, stop ends, stop end outlets and running outlets as shown on the drawings or as directed by the Director of Works. Gutters to be secured by means of support brackets secured to facial/rafter spaced at not more than 1.00m centers. Additional brackets shall be fixed on each side of running outlets, stop ends and outlets, and at angles. Only rust-proof screws shall be used for fixing gutters.

2. Soil pipes
   (a) Supply and fix all internal soil waste and ventilating pipe work as shown on the drawings and connect to manhole, all in U.P.V.C. pipe unless otherwise specified or approved.
   (b) Supply and fix all bends, junctions, reducing pieces, inspection eyes, sleeves etc. as are shown on the drawings or as instructed by the Director of Works.
   (c) Vertical stacks to be firmly secured to blockwork/concrete by means of pipe brackets at not more than 2.00m centers.
   (d) The soil pipe above the highest branch is to be continued upwards to such a height and in such a position as to afford a safe outlet for foul air and shall be covered with wire dome at the outlet.
(e) Traps on branch soil and waste pipes to be ventilated at a point not less than 75mm or not more than 30mm from the highest point and on the nearest side to the soil and waste pipe. The vent pipe may be in U.P.V.C. unless otherwise specified or approved with all needed joints, of diameter not less than 32mm for single lavatory or sink waste and not less than 50mm for W.C. and urinal traps. The size of vent pipe serving a number of fittings shall be 50mm. Connect the branch vent pipes to the main ventilation stacks(s) as shown on the drawings or approved by the Director of Works, finish as for soil pipe.

(f) Connect sanitary appliances to main soil pipe; all appliances/fittings to be trapped, with the exception of waste outlets, discharging into gullies “over air”. Waste pipes shall be of the same diameter as the outlet from appliance/fitting.

3. Supply pipework

(a) Excavate for supply pipe not less than 45cm below the surface, back-fill over supply pipe after testing in accordance with Clause 1403, 4 and 5 using 150mm granular fill above the pipe.

(b) Take possession of and install at site boundary, water meter supplied by water authorities in meter chamber constructed to the sizes specified and in the manner described for manholes in Series 1400 Drain layer. Provide and install stop valves at point of entry to the site before the Company meter.

(c) Lay main supply pipe on 150mm bed of sand in the material and of the size shown on the drawings from main company supply to point of entry to the building/to rising mains to storage tank, provide stop valve to rising main to tank.

(d) Provide and fix rising main to storage tanks and connect thereto. Provide and install stop valve adjacent to the connection to the tanks.

(e) From the rising main, run services as specified to drinking water points and cold water storage tanks shown on the drawings and connect to outlets with union fittings. Provide stop valves on each branch immediately adjacent to the mains supply connection and adjacent to the water points and cold water storage tanks.

(f) Provide and fix on approved bearers, water storage tank as previously specified in the position shown on the drawings complete with ball valve, cover, overflow (larger than supply pipe) to be carried through/over wall and to discharge in the open. Bearers shall run the full width of the tank.
(g) Stop valves below ground level shall be placed in approved underground valve boxes with lockable covers.

4. Distribution

(a) Provide and fix distribution pipework from storage tanks to sanitary fittings and draw-off points including installing all necessary bends, tees and other fittings, and the connection to tanks and fittings. Pipework shall follow the line of walls vertically and horizontally and shall be graded as necessary for draining and venting. Provide draw-off valves at low points. Pipework carried through floors, walls, beams or other structural elements shall be sleeved.

(b) Provide a stop valve on each distribution pipe outlet from the cold water storage tanks.

(c) Provide a stop valve on distribution pipes adjacent to each sanitary fitting or bib valve or to each range of sanitary fittings or bib valves as indicated on the drawings.

(d) All internal pipework shall be surface-mounted unless otherwise specified or directed.

5. Fittings

(a) Provide and install sinks, lavatory basins, gullies and all other sanitary fittings in the positions shown on the drawings.

(b) Provide and fix bib or pillar taps to sinks, lavatory basins and drinking points as indicated on the drawings.

6. Testing

(a) The Contractor shall be responsible for testing to insure the efficient functioning of the water supply and distribution system, internal sewerage, and rainwater disposal system to the approval of the Director of Works.

(b) Water supply and distribution pipework shall be watertight under the full operating head, any joints/connections which leak shall be remade to the approval of the Director of Works.

7. Shop Drawings

(a) Before the commencement of any plumbing and sewerage work the Contractor shall submit one soft copy and two hard copies of drawings,
detailing his proposals for the layout of the plumbing and sewerage installations, to the Director of Works for approval.

(b) The drawings shall show the proposed location and diameter of every pipe run and the proposed location of all valves, manholes and the like.

(c) On completion of the Works the Contractor shall provide the Director of Works with a set of “as-built” drawings one soft copy and two hard copies detailing the exact location and size of all pipes, branches, tees, valves, manholes and the like.

8. Samples of all materials, appliances and fittings shall be approved by and deposited with the Director of Works. Such samples will be returned to the Contractor for installing in the Works.
Glazing

1800

Glazing
General

1. Prepare beds and surfaces for glazing and install glass of the type, thickness and quality specified in fixed and opening lights as shown on the drawings all in accordance with this Specification and to the satisfaction of the Director of Works.

Materials

1. All glass shall be in accordance with BS 952-1:1995 and BS 952-2: 1980 and shall be free from all blemishes. Glass shall be delivered in proper containers with maker’s name, guarantee, type of glass and thickness or weight of glass attached to the outside of the containers.

2. Sheet glass shall be 6mm thick ordinary quality glazing, unless stated otherwise.

3. Obscured glass shall be plain rough cast glass with one side textured, 6mm thick.

4. Wired glass shall be rough cast wired glass 6mm thick, polished Georgian wired having both surfaces ground and polished and with square mesh inserted during rolling.

5. Transparent silicone for glazing to timber frames of approved manufacture.

6. Transparent silicone for glazing to steel frames of approved manufacture.

7. Other type of safety glass could be used such as:

   (a) Tempered glass is used to create entrance doors and other components in commercial buildings. It’s also used in vehicles as door, vent and back glass. During the manufacturing process, tempered glass is heated to over 1,100 degrees. It’s then shot with cold air, which forces the glass to cool very rapidly. That process causes the outer surface to become much harder than the inner material. As a result, tempered glass shatters into tiny fragments with rounded edges when it’s broken.

   (b) Laminated glass is used primarily for vehicle windshields. Two sheets of glass are bonded together by a plastic inner layer known as poly vinyl butyral (PVB). The inner layer softens the blow when anything hits the windshield and prevents the glass from separating. That, in turn, reduces the chances that you and your passengers will be seriously cut in the event of an accident.
1803 Workmanship

1. Clean timber rebates, prime and paint with one undercoat prior to applying silicone to frames.

2. 
   (a) Out glass to sizes (leaving suitable clearance) set in silicone bed in frames, sprigging for timber frames and wedging for metal frames and neatly silicone. Silicone shall not appear over sight liens.

   (b) Alternatively set glass in silicone beds/wash leather and secure with glazing beads (by others) of the sizes and profiles shown on the drawings metal beads (by others) of the sizes and profiles shown on the drawings. Metal beads shall be secured with dome headed rustproof self-tapping screws at not more than 22.5cm centers. Timber beads shall be secured with brass caps and screws at not more than 22.5cm centers.

   (c) (i) Glaze all external windows except the W.C. or where otherwise specified with sheet glass as specified above.

   (ii) Glaze internal clearstory lights, W.C. windows, fixed light panels and where otherwise specified in the Contract Documents with obscured glass.

1804 Sundries

1. Clean the glass inside and outside on completion and replace all cracked and broken glass.

2. Samples of alternative glazing materials shall be submitted to and require the written approval of the Director of Works.
1900

Painting and Decorating
1. All metal fittings and fastenings are to be removed before the preparatory finishing processes are commenced, cleaned and refaxed in position on completion.

2. All mild steel fittings, fastenings, screens, grills etc. shall be painted in accordance with Clause 1903.2.

3. Floors, fixtures and surfaces not to be painted shall be adequately protected.

4. (a) A painting schedule will be provided prior to the execution of the work, specifying color and surfaces to be coated. Successive coats of paints shall be different shades to facilitate identification.

   (b) Provision must be made for the execution of patterns or trial areas on the site if requested by the Director of Works.

5. (a) All materials shall be applied strictly in accordance with the manufacturer’s instructions. Any addition of thinner must be made under the supervision of the Director of Works and only as allowed by the manufacturer’s instructions.

   (b) All paints shall be brought to the site in the manufacturer’s sealed containers; each container shall be labelled by the manufacturer with labels stating:

      (i) The manufacturer’s name, date of manufacture
      (ii) The type of paints
      (iii) The color
      (iv) Instructions for thinning and mixing.
      (v) Instructions for applying and warnings.

   (c) Paints shall be stored in sealed containers and shall not be subject to extremes of temperature.

   (d) Paints shall be used within their stated ‘shelf life’ or within 18 months of manufacture whichever period is lesser.

6. Paints shall not be applied in a relative humidity of 80% or over or externally in wet weather or damp conditions.
7. Surfaces for painting must be dry and free from dust, dirt, efflorescence or condensation.

8. Execute and complete all the painting and decorating work shown on the drawings/schedules all in accordance with this Specification and to the satisfaction of the Director of Works.

1902 Materials

1. Knotting shall be a solution of approved shellac or other resins in alcohol.

2. Stoppers shall be emulsion polymer based of approved manufacture.


4. (a) Wood primer shall be a low-lead content primer to BS 7956:2000 of approved manufacture.

(e) Metal primer, for application to steel surfaces, shall be a zinc chromate red oxide based primer of approved manufacture.

(f) Primer for application to galvanized surfaces shall be a calcium plumb ate metal primer of approved manufacture to BS 3698:1964-01-15.

(g) Plaster and concrete primers shall be an alkali resistant primer of approved manufacture.

5. Oil paint shall be alkyd-based paints in gloss matt or eggshell as specified, all of approved manufacture. Undercoats shall be from the same manufacture and shall be compatible with the finishing paint.

6. Emulsion paint shall be synthetic polymer dispersions in water of approved manufacture.

7. Lime wash shall be composed of slaked lime and alum with coloring pigments added as required all of best quality and to the satisfaction of the Director of Works.

8. Vanish shall be best quality synthetic resin based varnish of approved manufacture.

9. Bituminous paint shall be from natural asphalt dissolved in white sprit. It shall be of approved manufacture. Tar paint shall be hot applied tar complying with.
1903 Workmanship

1. General

   (a) Primed or undercoated timber or metal shall not be left in an exposed or unsuitable situation for an undue period before completing the painting.

   (b) Brushes, pails, kettles and the like used in carrying out the work shall be kept clean and free from foreign matter. They shall be cleaned before being used for different types or classes of materials.

   (c) Priming and undercoats shall be lightly rubbed down with fine sand-paper before subsequent coats are applied.

2. Paint on Metalwork

   (a) All steel surfaces to be painted shall be cleaned from rust, scale, loose paint, oil, dirt and all deleterious matter before priming. The cleaning shall be carried out to the approval of the Director of Works using power driven tools followed by steel wire brushing and dusting, wherever possible.

   (b) Prepared steel surfaces shall be primed with an approved primer. Priming of steelwork shall take place as soon as possible after preparation of surface. Provide a second coat of primer if undercoating cannot be carried out immediately afterwards.

   (c) Galvanized surfaces shall be treated with mordant washes prior to priming with approved primer.

   (d) Apply one undercoat oil paint, as specified, to the primed steelwork. Putty shall be painted at the same time wherever possible. All edges, angles, projections to have a stripe undercoat applied as soon as the first coat is dry.

   (e) Apply two finishing coats of oil paint as specified to the under coated steelwork.

   (f) The minimum dry film thickness of the paint coating shall be 200 microns.

3. Paint on Woodwork
(a) All cracks, defects and holes in the woodwork shall be scraped out, primed, made good with hard stopping, leveled and rubbed down to an even surface.

(b) Larger knots in woodwork shall be removed and replaced with sound wood and/or made good with approved filler. Small knots shall be treated with two coats knotting as specified above.

(c) All woodwork shall receive one coat of approved primer prior to incorporation in the works.

(d) All exposed woodwork shall be painted with 1 undercoat and 2 finishing coats oil paint, as specified.

4. **Paint on Plasterwork or Concrete Surfaces**

   (a) Prepare surfaces to be painted; large cracks shall be cut out with undercut edges and made good with cement mortar or equal and approved. Small cracks shall be made good with hard stopping and rubbed down level with the main face. Concrete surfaces to be painted shall be prepared with approved filler and rubbed down to a smooth, even surface.

   (b) Prime plaster surface with approved primer.

   (c) Apply two coats lime wash, as specified, to ceilings internally unless otherwise stated on the Contract Drawings.

   (d) Apply two coats emulsion paint, as specified, to walls and soffits internally, where indicated on the Contract Drawings.

   (e) Apply one undercoat and two finishing coats of oil paint, as specified, to plastered wall surfaces including surface preparation and putty as indicated in the Contract Drawings.

5. **Painting with Tar or Bitumen**

   (a) Apply two coats tar or bituminous paint to plastered/concrete surfaces below ground/fill level as indicated on the drawings. Or One layer membrane without chipping (Mineral slate granules layer) 5mm thick, including priming " GS/474" 500 (gr/m2) all in according to the contract documents.
(b) Prior to the application of the tar or bituminous paint the surfaces to which it is to be applied shall be clean and dry. The first coat shall be allowed to dry before the second coat is applied.

1904 Sundries

1. Samples of all materials used for painting and decorating work shall be approved by and deposited with the Director of Works.

2. On completion of the works all painted surfaces shall be kept clean and free from dirt and dust.
2001 General

1. The work shall be carried out to the satisfaction of and in accordance with the rules, regulations and requirements of the supply authority.

2. Execute and complete the electrical installation shown on the drawings and/or described in the Contract Documents.

3. Shop Drawings
   (a) Before the commencement of the Works the Contractor shall submit one soft copy and two hard copies of drawings, detailing his proposals for the electrical installation, to the Director of Works.

   (b) The drawings shall show the proposed location and sizes of all conduit runs, junction boxes, outlet boxes, connections, switches, sockets, cables, electrical boards, fittings, accessories and the like together with wiring diagrams.

2002 Materials

1. Cables and Cabling
   (a) Power cabling from the source of supply to the distribution board and from the main distribution board to secondary distribution boards shall be of the underground type; such cables shall be of an approved four core P.V.C. (Polyvinyl Chloride) insulated and sheeted steel wire armored and PVC sheathed, and shall be in accordance with IEC 60502-1:2004+A1:2009 CSV Consolidated version standards-rated for not less than 1000 volts to ensure that voltage drop from the main to the distribution board does not exceed a 0.55 of the full rated load. The conductors shall be high-conductivity standard annealed copper or aluminum. These cables shall be used to connect between the source of supply and the various buildings and between one building and another. Routes as shown on the layout drawings shall be used.

   (b) Where cables cross roads subject to heavy traffic, they shall be run in steel pipe. Where cables cross in, or under, concrete slabs, they shall be pulled in a 100mm diameter rigid PVC pipe embedded in concrete.

   (c) Cables shall be laid in general at a depth of not less than 50cm below the ground surface on 150mm of clean dry sand. After laying the cable, 10mm of clean sand shall be poured over the cable as cover. Concrete tiles shall then be laid over the sand cover including warning strip before backfilling the trench.
(d) Where two or more cables are laid in the same trench, a minimum of 150mm shall be left between them and they shall be laid in the same horizontal plane. Where crossing is necessary cables shall be clear of each other by at least 150mm.

2. **Grounding**

(a) A grounding bus shall be established at the source of supply in accordance to the local electrical authority’s requirements and regulations and the armor of each cable shall be grounded at both ends. Additional grounding rods shall be used as instructed by the Director of Works. Grounding rods shall be consists of three driven copper rods, 250cm long and 12mm diameter, the distance between each rod and the other have to be at least 7 meters with a checking man hall at least 60cm depth, and the ground resistance shall not exceed 5 Ohms.

(b) Unless otherwise specified, all grounding wires shall be stranded cooper bare conductors without joints between the terminals. They shall be adequately protected from mechanical injury and shall be well secured at both ends with proper and approved ground clamps.

(c) Facility shall be provided for the adequate earthing of each fitting.

(d) All non-live metal parts shall be grounded. All equipment and system grounding shall be accomplished with separate conductors to the grounds bus.

(e) The grounding connections of the distribution boards shall be carried out with AWG no.2 (American Wire Gauge) (35mm2) wires. Special care shall be taken to ensure ground continuity through the conduit system.

(f) All grounded three-pin outlets shall have the ground terminal connected to the metal straps which are in contact with the box.
3. **Conduit and Fittings**

(a) All cables and wires shall be carried in approved continuous, rigid PVC conduit conforming to BS 4607-1:1984+A2:2010 and BS 4607-5: 1982+ A3: 2010, medium impact, unless otherwise stated. The installation shall be a screwed or adhesive fixed assembly embedded in the concrete slabs, beams or columns or run in chases out into the wall surfaces and covered with plaster unless surface fixing is specified. Adequate provision shall be made for expansion. Proper earthing continuity shall be provided in the drawn-through cabling. The inside surface of the erected conduit and fixings shall be hard, smooth and free from burrs.

(b) All wires and cables passing under floor tiles shall be carried in galvanized continuous steel conduit to with fitting to BS 4607-1:1984+A2:2010 and BS 4607-5: 1982+ A3: 2010, and painted with black bituminous paint after erection, or rigid PVC conduit.

(c) No conduit smaller than 16mm outside diameter shall be used. The conduit shall be of such diameter that the total cross-sectional area of the cables and wires inside does not exceed 50% of that of the conduit.

(d) Approved junction or outlet boxes shall be used at all branching’s of conduit or outlets. A maximum run of 10m with 2 no. 90 degrees bends shall not be exceeded between one box and another on a single run of conduit.

(e) Junction boxes for concealed conduit runs shall be with knockouts. Reducing washers shall be used at boxes which do not have the required size of knockouts. Boxes shall have knockouts of conduit fitted to them. All boxes shall be supplied complete with covers, locknuts, bushings and the like.

(f) Bends in conduits shall be made such that the inside radius of the bend is not less than two and a half times the outside diameter of the conduit. Bent angles shall not exceed 90 degrees.

(g) Conduit work in floor slabs, or underground, shall be rendered water-tight by adhesive jointing with a waterproof adhesive approved by the Director of Works or by wrapping with a coating approved by the Director of Works.

(h) Conduits passing through floor slabs, walls or partitions shall be protected by sleeves.
(j) Conduits emerging from slabs for surface runs shall have all points of connection (i.e. bends) properly aligned so that the surface runs fit exactly in place.

(k) Where conduit terminates in a box, a smoothly rounded bushing with a separate locknut, to the approval of the Director of Works, shall be used to provide protection against wire abrasion.

(l) Surface mounted conduits to external or internal surfaces, where specified, shall be fixed by galvanized pressed steel or approved PVC straps at not more than 1.5m spacing for sizes up to 25mm diameter and not more.

(m) All conduit ends left open during the course of the Works shall be plugged to avoid filling with plaster, and the like.

4. **Wire**

(a) PVC insulated PVC sheathed copper conductors to BS 6004:2012 shall be exclusively used for wiring inside conduits and an earth wire shall be approved by the Director of Works. Wires shall be standard 600 volt grade for both light and power circuits.

(b) Pulling of wires inside conduit may be carried out before the finishing works have been completed, unless otherwise instructed by the Director of Works. However, connections to all devices and installation of fixtures shall be carried out after the finishing works have been completed.

(c) No lubricant, other than soapstone, shall be used to facilitate pulling of wires.

(d) All taps and joints in conductors shall only be made in outlets, junction boxes, and fuse boards, no joints shall be made in joint boxes. Connectors and clamps shall be of approved design shrouded with plastic insulation. At each fixture a loop or end of wire not less than 20cm long shall be left for connection to devices or fixtures. Soldered connections shall be used where conductors are under a strain. Non-acid base flux shall be used for soldering.

(e) Insulation at joints connections shall be equal to the relative conductor insulation and shall be made with PVC insulating tape.

(f) Wiring inside distribution boards shall be neat and well-arranged using appropriate lugs for termination and connection of conductors.

(g) Switches shall be wired in the phase lines only. The neutral conductors shall not be broken. All outlets shall be wired in the same manner with the
phase always connected to the name pole (right pole when viewed from the rear or the top pole).

(h) In three phase circuits, phase identification shall be applied by adopting red, yellow and blue for the three phases. The same color shall be used consistently for the same phase. No phase shall be allowed to terminate within 2.5m of any different phase. Neutral conductors shall have white insulation, grounding conductors, when required for grounding fixtures, shall have green insulation, or shall be bare copper wire.

5. **Switches**

(a) Switches shall be of an approved silent tumbler type.

(b) Outlet boxes for switches shall be fixed 1400mm above finished floor level, unless otherwise directed and 120mm horizontally from the outside edge of the nearest door architrave.

(c) Outlet box shall be of standard grade two-piece, molded housing, totally enclosed, top-wired type, 220 volt, single pole, with bar-type plaster ears and mounting screws.

6. **Socket Outlets**

(a) Boxes for socket outlets shall be installed 600mm above finished floor level unless otherwise directed.

(b) Socket outlets to BS 546:1950 shall be approved 5 Amp. Or 15 Amp. Outlets, to take two-pin plugs and shall be complete with plug.

(c) Outlets shall be suitable for 220 volts single phase and shall have molded casing, plaster ears and mounting screws.

7. **Plates**

(a) Plates for switches and socket outlets shall be approved heavy-duty white plastic, fitting flush against the plaster, attached to the outlet box by two screws.

8. **Tungsten Fittings**

(a) All ceiling lighting points for interior tungsten filament lamps are to be supplied to approved design and complete with ceiling rose, twin-twisted 1.00mm2 heat resisting PVC covered flex, lamp holder and pearl coiled-
coil gas-filled filament lamp (blub) of wattage shown on drawings, and if indicated in the Bill of Quantities, also with the light fitting there stipulated (ceiling or wall type).

9. **Fluorescent Lighting Fittings**

(a) All ceiling lighting points for fluorescent tubes with reflector are to be supplied to approved design complete with ceiling rose, twin-twisted 1.00mm² heat resisting PVC covered flex, suspension hooks and rod or chains of enough length and double tube fluorescent light fittings of the best quality in the market or in according to the specified type in the tender documents or equal approved by the Director Of Works complete with starter, tube holder, transformers, and two 36 watt daylight type fluorescent tubes all fitted in white enameled, steel, open-ended trough reflector (local made).

10. **Distribution Boards**

(a) Distribution Boards shall be to BS EN 61439-2:2011 and BS EN 61439-3:2012 and shall be of the dust resistant 3–phase 4-wire (solid neutral) 380/220 volt type with a main circuit breaker controlling a 3-phase distribution chamber with fuses for separate circuits mounted in a box of galvanized steel 2mm thick with a single door and wiring gutters and knockouts on all four sides. Alternatively, Miniature Circuit Breakers to BS EN 61439-3:2012 may be provided in place of fuses. The box shall be finished in medium light grey enamel over a rust inhibitor and the door shall have semi-concealed heavy duty galvanized hinges, combination catch and lock, and circuit directory card and card holder on the back. Distribution boards shall be wall-mounted with 12mm bolts.

(b) 25% spare ways shall be allowed.

(c) Circuit breakers shall be of the bolted-in type with interrupting rating of 7500 Amps. RMS a.c. and shall be of either three pole or single pole 380/220 volt as appropriate. They shall be of the quick made, quick break, trip free, trip indicating with thermal magnetic tripping mechanism (enabling non-automatic tripping) of the dust light and watertight type.
1. The system of distribution shall be of the radial type, for both light and power circuits.

2. (a) Connect the electrical installation to the electricity supply company’s main supply and make all arrangements therefore and pay all charges in connection therewith.

(b) Provide all circuit breakers, meters and the like, required by the electricity supply company.

3. **Lighting Wiring**

   (a) From distribution board run 1.5mm² twin-with-earth sheeted-wiring cables to the lighting points shown on the drawings terminate at each point with fitting as shown on the drawings. All earth wires shall have green sleevings. No more than 12 lighting points shall be connected to 1 fuse way or Miniature Circuit Breakers (MCB). All in according to the drawings and the contract documents.

4. **Socket Wiring**

   (a) From the distribution board run 2.5mm² twin-with-earth sheeted-wire cables to the socket outlets shown on the drawings. 15Amp sockets shall be connected to individual fuses or MCBs. 5 Amp sockets shall be connected in group of not more than 3 to individual fuses or MCBs. All in according to the drawings and the contract documents.

5. All motors over 1/8 HP shall be connected to individual fuse ways or MCBs. All motors other than fan motors less than 1/16 HP shall be provided with contactor starters fitted with overload tips and ‘no-volt’ release. All motors and other fixed appliances shall be provided with efficient means of isolation mounted immediately adjacent to the appliance. Final connection to motors and other appliances shall be made by means of PVC insulated cables enclosed in PVC covered flexible metal conduit of approved manufacture. A separate earth-wire shall in all cases be run through this conduit and exposed at either end. All in according to the drawings and the contract documents.
6. **Testing**

   (a) The complete system shall be thoroughly tested before operation. Tests shall be carried out by the Contractor, under the supervision of the Director of Works, or a person nominated by him. Any modifications or repairs necessary on the completion of the tests shall be made good at the Contractor’s expense. The contractor shall provide all testing equipment and materials.

   (b) Tests at site shall include:

      (i) Continuity test of the whole system, including the grounding system, shall be carried out by means of a bell and battery supply;

      (ii) Megger tests shall be carried out on conductor installations and between insulated conductors and ground, using a 500 volt megger. Readings shall not be less than the value specified in the National Electric Code;

      (iii) Operating tests shall be carried out on all circuits and equipment to the satisfaction of the Director of Works and the local electricity authority.

7. **Labeling**

   (a) All sockets, switches, cables, circuits, junction boxes, low voltage outlets shall be labeled using special labeling system to the approval of the Director of Works.

2004. **Sundries**

   1. The Contractor shall leave the electrical installations in proper working order on completion of the works.

   2. If indicated in the Bill of Quantities that wiring and outlets are required for a telephone system, such wiring and fitments will be according to instructions, and will be embedded in the walls with in-lets and outlets as shown on the drawings. Handsets and exchange will be provided by the Telephone Office or by the Agency, and the Authority in charge will also make connections to the exchange. Materials and labor should be approved standards.
Gas Installation

2100

Gas Installation
2101 General

1. The work shall be carried out to the satisfaction of the Director of Works and in accordance with the rules, regulations and requirements of the supply authority.

2. Execute and complete the gas installation shown on the drawings and/or described in the Contract Documents.

3. Pipework shall be laid in UPVC pipe/sleeve underground and in galvanized pipe externally and to be painted in accordance with Series 1900 Painting and Decorating, unless otherwise specified.

2102 Materials

1. Pipework shall generally be copper to BS EN 12449:2012.

2. Gas outlets/collectors

(a) Gas outlets shall be solid brass, chromium plated, and duplex gas outlets as specified in the contract documents or equal approved.

(b) Each gas outlet shall be provided with a 12mm diameter threaded, chromium plated pipe with two chromium plated back nuts and two hard neoprene washers; one end of the pipe shall be fitted with a 10mm diameter brass hose connector.

(c) Outlets, elbows, pipes and hose connectors shall be jointed with an approved jointing compound suitable for use with gas installations specified. Joints shall not be made with red lead.

(d) The gas outlets/collectors shall be put within a steel/galvanized distribution box size 60cm wide x 75cm height and 15cm deep recessed inside wall, including handles, key and painting all in according to the contract documents.

(e) Gas Regulator of the best quality in the local market shall be installed at the gas store, including the required distributor outlets, regulator, pressure reducer, gauges, and required connections all in according to the contract documents and the instruction of the Director of works.
2103  **Workmanship**

1.  
   (a)  Drill holes through tops to benches for pipes. Outlets shall be secured to bench tops by means of washers and back nuts on each side of the bench top.
   
   (b)  Copper pipes may generally be soldered but shall be brazed when near and appliance or subject to heating.
   
   (c)  Sharp bends and angles producing loss in pressure should be reduced to a minimum.
   
   (d)  Each run of pipe should be provided with a means of disconnection for easy cleaning or replacement.
   
   (e)  Pipes should be easily accessible without damaging the structure.
   
   (f)  Pipes should be properly supported with an incombustible material.
   
   (g)  As for a service pipe, where an installation pipe passes through a floor or wall, a sleeve should be provided, the space between sleeve and pipe being afterwards filled in.
   
   (h)  Where pipes are run on the surface of the structure, the support should be such that the pipe is held clear of the surface.
   
   (j)  Where vertical runs occur, means should be provided for removing obstructions by fitting a screwed plug at the bottom of the vertical run.
   
   (k)  Where non-ferrous pipes are used under floors, care should be taken to ensure that they will not be damaged by puncturing.
   
   (l)  Gas pipes should not touch other service pipes and should be laid as far as possible from electric cables.
   
   (m)  Pipes should not be laid near any source of heat.
   
   (n)  Where pipes are laid to points for future use only, the ends should be securely capped or plugged and be left under the floor surface preferably with access through a screwed-down trap.
   
   (p)  Joints in pipes should be of an approved type and jointing compounds, when used, should be non-corrosive and allow easy disconnection.
2104 Testing

1. (a) Before connection to any meter and before the exposed pipes are painted, the system shall be checked by or under the supervision of the Supply Authority.

(b) Taps shall be specially designed for the type of installation specified (bottled or mains) and shall be tested to 5 lb/Inch$^2$ pressure.

c) Joints shall be tested to 3 lb/Inch$^2$ pressure after completion and before painting.
Aluminum work

2200

Aluminum work
2201 General

1. Execute and complete all aluminum work shown on the drawings and/or described in the Contract Documents according to the specified sizes, profiles, types and dimensional requirements in a proper manner and in accordance with the Specification, contract documents and the approval of the Director of Works.

2. The aluminum works shall include all required ironmongery an hardware of the best quality available including all accessories and fittings such as wheels, rails, hinges, handles, locks, brushes, rubbers, supporting arms, door jacks, silicone sealant, stainless steel, screws and angles…etc. in according to the contract documents and the approval of the Director of Works.

3. The contractor shall submit shop drawings to the Director of Works prior to the commencement of works as well sample of manufacturing for approval. Approval by the Director of Works of the shop drawings or samples shall not relieve the Contractor of his responsibilities under the Contract.

2202 Materials

1. Extruded aluminium sections should be used as approved by the Director of Works. Shape shall be as shown on the drawings and as required fulfilling performance requirements, but not less than 3 mm thick.

2. This specification covers extruded bars, rods, wires, profiles, and tubes made from aluminium and aluminium alloys and shall comply with ASTM B221-14. All the products should be produced by hot extrusion or similar methods. The chemical composition of each material is determined in accordance with the specified suitable chemical and spectra chemical test methods. Samples for chemical analysis should be taken when the ingots are poured or from the finished or semi-finished products by drilling, sawing, milling, turning, or clipping. Tensile properties, elongation, and yield strengths of each product should conform to the requirements listed herein. Elongation requirements are not applicable for materials with sizes smaller than the specified limits.

3. All visible surfaces of the sections shall be brilliantly polished prior to anodising. The colour of anodising shall be as described in the Drawings and the contract documents.

4. The sections shall be anodised to a minimum thickness of 25 microns and shall comply with ASTM B137 - 95(2004) And ASTM B680 - 80(2014). The supplier must submit necessary evidence to the satisfaction of the Director of Works that the thickness of anodization is not less than 25 microns. In case of doubt the Director of Works reserves the right to send sample pieces to independent testing laboratories.
5. All required ironmongery and hardware shall be complete according to the contract documents and to the satisfaction of the Director of Works.

2203. Workmanship

1. The contractor shall verify all the dimensions of openings by field measurements so that all required aluminum works types as specified in the drawings and the contract documents including windows, doors, gates and fly screen...etc. will be accurately designed, fabricated and fitted to the structure. All frames shall be made to fit the actual openings with a maximum variation of erection tolerances 3mm clearance all round. Discrepancies in overall width or height exceeding 3mm will not be allowed and the frames will be rejected in such cases.

2. The manufacturing and erection of all aluminium works shall be in accordance with the manufacturer's written instructions and recommendations.

3. All windows, doors and gates shall be weather stripped with heat resistant PVC sections. The weather fighting action shall be achieved by a positive compressive action against the PVC section and shall not depend on an external contact with the PVC section. At every contact between two profiles two weathers tipping sections shall be provided for complete weather protection.

4. Hinges shall be in anodised aluminium with stainless steel pins and nylon washers. A mortice cylinder rim automatic deadlock of high quality with double pin tumbler shall be used when required.

5. The handle-latch set shall have all visible surfaces of anodised aluminium or similar non-rusting material to the approval of the Director of Works. The handle shall have a proper grip. The latching mechanism shall not be surface mounted but shall be concealed within the sections.

6. Glazing sections shall be in special heat-resisting PVC and of channel type. Separate glazing sections on each side of the glass will not be permitted. The thickness of the glass shall be as specified in the drawings and the contract documents but not less than 4mm thick. In case of the double sheets glass the minimum thickness shall be 6mm out, 4mm void and 4mm in.

7. If aluminium shutter or louvre specified in the drawings and the contract documents the contractor shall follow the details accordingly to the approval of the Director of Works. The shutter sections for windows and doors shall be of tubular type and shall be including flanges. The shutters of the windows and doors shall be assembled with concealed corners of high rigidity. Hinges shall be concealed within the sections. The rollers for sliding shutters for windows and doors shall be of an adjustable type. The adjusting screws shall be accessible in the assembled state of the shutters.
2204. **Sundries**

1. On completion of the works all frames, sections, latches, hinges, locks, angles, brushes, rubber, screws, glass and the like shall be cleaned, to be free from dirt, tested and functioning properly to the satisfaction of the Director of Works.

2. All keys shall be clearly labelled with plastic tags (5cm x 2cm) securely fixed to the keys, which shall be handed to the Director of Works.
### Appendix

**APPENDIX**

The following is a list of British Standards to which reference is made in this Specification

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</tr>
<tr>
<td>BS EN 1339:2003</td>
<td>Concrete paving flags. Requirements and test methods.</td>
</tr>
<tr>
<td>BS EN 1339:2003</td>
<td>Concrete paving blocks. Requirements and test methods.</td>
</tr>
</tbody>
</table>
| BS EN 13598-1:2010 | Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly (vinyl
<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS EN 1340:2003</td>
<td>Concrete kerb units. Requirements and test methods.</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>BS EN 491: 2011</td>
<td>BS ENG 491: 2011- Concrete roofing tiles and fittings for roof covering and wall cladding. Test methods.</td>
</tr>
<tr>
<td>BS EN ISO 1479:2011</td>
<td>Hexagon head tapping screws.</td>
</tr>
<tr>
<td>BS 4514:2001</td>
<td>BS 4514:2001- Unplasticized PVC soil and ventilating pipes of 82.4 mm minimum mean outside diameter, and fittings and accessories of 82.4 mm and of other sizes. Specification.</td>
</tr>
<tr>
<td>Specification</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BS EN 12449:2012</td>
<td>BS EN 12449:2012- Copper and copper alloys. Seamless, round tubes for general purposes.</td>
</tr>
<tr>
<td>BS EN 1254-1:1998</td>
<td>BS EN 1254-1:1998- Copper and copper alloys. Plumbing fittings. Fittings with ends for capillary soldering or capillary brazing to copper tubes.</td>
</tr>
<tr>
<td>BS EN 12201-5:2011</td>
<td>BS EN 12201-5:2011- Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). Fitness for purpose of the system.</td>
</tr>
<tr>
<td>Standard</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>BS 4213:2004</td>
<td>Cisterns for domestic use. Cold water storage and combined feed and expansion (thermoplastic) cisterns up to 500 l. Specification.</td>
</tr>
<tr>
<td>BS EN 13280:2001</td>
<td>Specification for glass fiber reinforced cisterns of one-piece and sectional construction, for the storage, above ground, of cold water.</td>
</tr>
<tr>
<td>BS 952-1:1995</td>
<td>Glass for glazing. Classification.</td>
</tr>
<tr>
<td>BS EN ISO 1461:2009</td>
<td>Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.</td>
</tr>
<tr>
<td>IEC60502-1:2004+A1:2009 CSV Consolidated version</td>
<td>Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) - Part 1: Cables for rated voltages of 1 kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV).</td>
</tr>
<tr>
<td>BS 6004:2012</td>
<td>Electric cables. PVC insulated and PVC sheathed cables for voltages up to and including 300/500 V, for electric power and lighting.</td>
</tr>
<tr>
<td>BS EN 61439-3:2012</td>
<td>BS EN 61439-3:2012- Low-voltage switchgear and control gear assemblies. Distribution boards intended to be operated by ordinary persons (DBO).</td>
</tr>
</tbody>
</table>

| BS EN 12449:2012 | BS EN 12449:2012- Copper and copper alloys. Seamless, round tubes for general purposes. |
| BS EN 1254-1:1998 | BS EN 1254-1:1998- Copper and copper alloys. Plumbing fittings. Fittings with ends for capillary soldering or capillary brazing to copper tubes. |


**ANNEX F: TECHNICAL EVALUATION CRITERIA**

**TECHNICAL EVALUATION CRITERIA**

- The vendor should satisfy itself that the following information as requested has been provided. If evidence of such information is required, the vendor must provide the evidence so requested. The vendor's technical offer will be marked on a pass or fail basis. If a vendor fails any of the mandatory requirements, its bid will be rejected and not considered for further evaluation.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Examples of required documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The contractors that can participate in this tender are Contractors who have valid registration with the Ministry of Public Works and Housing- Jordan (MPWH) at Minimum 4th Grade Classification in Building Construction and/or 3rd Grade classification in building maintenance should provide Valid Company Registration Certificate for the year 2020 from Ministry of Public Work and Housing- Jordan (MPWH registration).</td>
<td>Vendor to provide the valid copy of the certificate from MPWH to prove that the company is registered at the right level and classification</td>
</tr>
<tr>
<td>2. <strong>Vendors Experience:</strong> The bidder must provide a list of past similar projects (magnitude and complexity) carried out by the contractor and certified by Jordanian Construction Contractors Association (JCCA) indicating similar projects. By magnitude and complexity, UNRWA means that the vendor must have completed one construction projects of not less than USD 300,000</td>
<td>Vendor must provide certificate of completion of the past projects, or certified list of projects that the vendor has executed in the past</td>
</tr>
<tr>
<td>3. <strong>On-going projects</strong> Provide all ongoing projects that are currently carried out by the contractors and values of these projects and date of completion.</td>
<td>The bidder must provide the authentic list of the ongoing projects his company is handling at the moment. Please use template in Appendix No. 2 while submitting each on-going project. <strong>UNRWA reserves the right to check the authenticity of the provided information. If on checking UNRWA establishes that the information submitted is not correct, then the vendors offer may be rejected.</strong></td>
</tr>
<tr>
<td>4. <strong>Past Performance:</strong> The Bidder must provide three documented evidence/certificate of satisfactory completion of similar projects or related projects from clients</td>
<td>Reference / Recommendation letters for similar or related projects in terms of complexity and magnitude</td>
</tr>
<tr>
<td></td>
<td>Bidders shall submit in their bid an irrevocable and unconditional <strong>Bid Bond</strong>, at their own cost. The Bid Bond shall be in a sum of 5% of the total value of the bid and valid for duration of 120 days after the closing date of the tender. The Bid Bond will be returned to unsuccessful vendors once the contract resulting from has been awarded. The Bid Bond will be returned to the successful bidder once the contract is signed and the performance bond submitted to UNRWA.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td>Submission of the solvency form fully filled and stamped by the Vendors bankers See Appendix 1</td>
</tr>
</tbody>
</table>

*Failure to comply with any of the mandatory criteria will lead to disqualification*
SOLVENCY FORM

I confirm that I have submitted the solvency form from my Bankers as attached. The solvency form I have attached contains all the information as requested.

Company Name: ________________________________________________________________

Name of Company Representative: ________________________________________________

Signature: _____________________________________________________________________

Date: _________________________________________________________________________
بيان الملاءة المالية للمقاولين

يشهد بنك ........................................ أن المقاول/اسم الشركة ........................................ المؤسسة في عام........................................ هو عمل لدىنا منذ العام ........................................ وفيما يلي البيانات والمعلومات المتوفرة لدينا عن العميل:

1. تفاصيل التسهيلات الممنوحة للمقاول وأرصدتها المستعملة كمعدل سنوي حتى تاريخه.
   - قيمة التسهيلات الممنوحة:
     أ. أقل من (100) ألف دينار أردني
     ب. من (100) ألف - (500) ألف دينار أردني
     ت. من (500) ألف - (1) مليون دينار أردني
     ث. أكثر من (1) مليون دينار أردني

2. هل واجه المقاول صعوبات مع البنك:
   - أ. في تسديد التزاماته؟
   - ب. متى كانت أخر هذه الصعوبات؟
   - ت. ما هو سبب هذه الصعوبات؟ يرجى الإشارة إذا كانت هناك أرصدة تسهيلات مستحقة وغير مدفعة مترتبة عليه؟

3. هل سبق وأن صدرت للمقاول كفالات على حساب المشاريع خلال السنوات الثلاث الأخيرة؟ ما سبب ذلك؟ متى؟ لصالح أية جهة؟

4. ملاحظات البنك على الوضع المالي للمقاول بشكل عام وعلى حركة حساباته.

5. أي ملاحظات أخرى عن المقاول ترونها ضرورية.

6. حجم التسهيلات التي يمكن أن تمنح للمقاول سنوياً.
APPENDIX 2

Information format for each project Completed Project or Ongoing Project

Project name : .................................................................

Location :...........................................................................

Name of client :.................................................................

Client contact (name, address, current telephone, fax, email) .................................................................

Contract value, US Dollars

Base contract Amount ...........................................................

Amount of Amendments to contract ...........................................

Project dates

Date started ...........................................................................

Date completed or when the contract will be completed .................................................................

Planned contractual duration ........................................................

Project Manager ........................................................................

Site supervisor(s) ........................................................................

Role of firm: Is your company a main contractor (indicate yes or No---------) Are you a subcontractor Yes/No---------

Brief description of the project ..........................................................................................................................

Points of similarity to current Contract: ...............................................................................................................

The Commercial Evaluation will be composed of two parts

1. Assessment of mandatory Requirements.
2. Comparison of Prices submitted by Vendors after arithmetical checks

Vendors are supposed to check their Prices to ensure that there are no errors. In case the errors are identified in any vendors financial offer, then the affected bidder will be requested to accept the corrected offer, otherwise the vendors offer will be rejected.

MANDATORY REQUIREMENTS

Vendors are required to accept the following mandatory requirements by signing the forms in Appendices 3 and 4

a) Acceptance of UNRWA General Conditions of Contract for Services
b) Acceptance to provide the Performance Bond / First Demand Guarantee in case of award

Failure in any of the above mandatory requirements may result in rejection of the Vendors Financial Bid

NOTE:

(i) Include all unit prices and total prices, and if the unit price is missing /un-priced, the unit price will be considered zero and it will mean the vendor has included this price in the overall total.

(ii) Please also double check arithmetical correctness of your bid before the submission
APPENDIX 3

ACCEPTANCE OF THE UNRWA GENERAL CONDITIONS OF CONTRACT

By submitting a tender, I confirm that I have accessed, read, and understood the UNRWA General Conditions of Contract in Annex J and I confirm the acceptance by signing this form

Company Name: ---------------------------------------------------------------------------------------------------

Name of Company Representative: -----------------------------------------------------------------------

Signature: --------------------------------------------------------------------------------------------------------

Date: ---------------------------------------------------------------------------------------------------------------
ACCEPTANCE TO PROVIDE THE PERFORMANCE BOND

[Form of First Demand Guarantee]

We hereby confirm that we accept to provide the performance bond in the form, format and value as stated in Annex H in case of award

Bidder (Company Name): ________________________________

Authorized Representative: ________________________________

Date: ________________

Signature: ________________________________
Bills of Quantities
BILL No. 1: ACCESSIBILITY IMPROVEMENT AND FIRE-SAFETY ENHANCEMENT OF UNRWA'S HQ AMMAN BUILDINGS

TENDER No.
**Renovation Works At UNRWA’s HQA**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEMOLITION, RENOVATION, DISMANTLING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demolition Works (Manually or by special equipment): The Contractor shall visit the site and make all investigations deemed necessary to ascertain the nature of the existing conditions of the structure to be demolished and/or to receive any alterations, and satisfy himself as to the form and nature of works to be carried out, and the existing Site Conditions. The Contractor shall obtain the Director of Works approval in writing, before carrying out any investigations, demolishing or renovation works. A clear method of statement should be submitted to DOW's and approved prior to any works. It shall be clearly understood that all salvaged materials and fittings arising from the demolished works shall become the Contractor's property unless otherwise specified in the brief prepared by the Director of Works, and shall be removed from the site. As the On-Site storing of salvaged materials and or debris shall not be allowed, the Contractor shall therefore remove it from the site on Daily Basis. The contractor shall prepare site offices for the supervision staff equipped with all needed office furniture and equipment. All contractor’s staff and equipment should be listed and submitted to DOW's in order to get the needed CSSD access permission according to CSSD rules and procedures.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alterations to existing fittings and services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Prior to carrying out any demolition works, the contractor shall: 1- Relocate the existing water supply lines keeping system in operation and the careful sealing off any extra unused lines. 2- Relocate the existing electrical and telephone installations keeping the system operational during and after working project's period. 3- Relocate the existing drainage and waste water system, disinfect, as deemed necessary keeping the system in operation and seal off at the out side face of the existing public sewage system where it is not used.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Carefully break out by mechanic cutting part of the existing ramps, down to underside of ground floor level, complete with base including removing debris from site (as shown on drawings)</td>
<td>7</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Dismantle carefully and removing existing marble thresholds. Work includes carefully demolishing of mortar, removal of all base and sub base layers and preparing the location to receive new threshold as per drawings and DOW's instructions</td>
<td>20</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Dismantle carefully and removing existing gypsum or glass partitions and Aluminum-glass doors; Work includes carefully removal of all parts of the partition and preparing the adjacent walls to be matching the surrounding finishing as per drawings and DOW's instructions</td>
<td>3</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1</strong></td>
<td><strong>A</strong></td>
<td><strong>1</strong></td>
<td></td>
</tr>
</tbody>
</table>
# Renovation Works At UNRWA's HQA

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Carefully dismantle and remove the existing single leaf door and the surrounding door jambs, lintels and top walls in order to open the corridor for full access. Rate shall include re-instate and making good walls, floors, painting and any surroundings to match existing scheme.</td>
<td>11</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Carefully dismantle and remove the existing double leaf door and the surrounding door jambs, lintels and top walls in order to open the corridor for full access. Rate shall include re-install and making good walls, floors, painting and any surroundings to match existing scheme.</td>
<td>4</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Dismantle and remove existing emergency external steel stairs (spiral), for three story, the work includes remove its base, making good all walls, plastering, painting to match existing or any external finishing to match existing type. Works to be according to the drawings and DOWs instructions,</td>
<td>4</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## ALTERATIONS

Alteration Works shall be done accordance with the drawings and UNRWA ICIP specifications. It shall be clearly understood that all salvaged materials and fittings will be contractor’s property except air conditions, fans, and data and sound system fitting to be Agency's property; and must be handed over to UNRWA stores as per the Director of Works instructions.

- Dismantle carefully and re-fixing again

| D   | Carefully dismantle the existing single leaf doors and door frames of any type and do all work needed to change the direction of opening of the door. The work includes any changes to be done for the door frame, walls, post columns, plastering, painting ..etc. to math the existing .. The work is to be according to the drawings and DOWs instructions. | 21  | No.  |      |                |
| F   | Carefully dismantle the existing double leaf doors and door frames of any type and do all work needed to change the direction of opening of the door. The work includes any changes to be done for the door frame, walls, post columns, plastering, painting ..etc. to math the existing .. The work is to be according to the drawings and DOWs instructions. | 17  | No.  |      |                |

<p>|       |                                                                                             | 1   | A   | 2   |                 |</p>
<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Carefully dismantle existing doors complete with glazed fanlight, repair, fix new fittings in place of missing parts where needed, including supplying new door locks to replace unserviceable ones (if needed), painting, and any other adjustments needed, closing the openings in old location including plastering and painting for internal and Tyrolean finish for external wall, all according to instructions and approval of Director of Works</td>
<td>1</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Carefully dismantle, relocate and re-fix to the new opening aluminum windows complete with marble sills and security screens refurbishing, including all repairs needed, and replace missing fittings; and closing the openings in old location including plastering and painting for internal and Tyrolean finish for external wall, all according to instructions and approval of Director of Works</td>
<td>3</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Carefully dismantling of existing handicapped toilet fixtures (wash hand basin, mirror and water networks lines and water mixer with all fittings ); diversion of existing water and sewage services, relocate existing fittings and re-fix to another location to be suitable to the standard toilet arrangement of handicapped persons use. Work includes all needed or additional water and sewage pipes, all tiling works to be matching the existing trend, fixation and positioning, work is to be according to the drawings and</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 1/A/3
Total

1 / A / 3
<table>
<thead>
<tr>
<th>COLLECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEMOLITION, RENOVATION, DISMANTLING AND ALTERATIONS</td>
</tr>
<tr>
<td>page 1/A/1</td>
</tr>
<tr>
<td>page 1/A/2</td>
</tr>
<tr>
<td>page 1/A/3</td>
</tr>
<tr>
<td>Page 4 Total</td>
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<td>1 / A / 4</td>
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</table>
## Renovation Works At UNRWA’s HQA

<table>
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<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN BUILDING</td>
<td>CONCRETEWORK</td>
<td>INSITU CONCRETE</td>
<td>Nominally Reinforced Concrete 250/20 (fair face job mix with broom finish)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ramps (base, walls and steps).</td>
<td>A</td>
<td>Generally</td>
<td>10</td>
<td>m3</td>
</tr>
<tr>
<td></td>
<td>Ground slabs</td>
<td>B</td>
<td>100 mm ground slabs to be constructed under external cement tiles</td>
<td>65</td>
<td>m2</td>
</tr>
<tr>
<td>Page 5 Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 / C / 1</td>
</tr>
</tbody>
</table>
## Renovation Works At UNRWA’s HQA

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>BLOCKWORK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Contractor shall manufacture and provide hollow and solid blocks for walls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concrete blocks type A compressive strength 35 kg/cm2. The rate shall be deemed to include Reinforced Concrete 200/20 Dummy Columns and lintels; the dummy columns should be used for all windows jambs as well as for timber and metal door jambs. All joints between any concrete and hollow block walling should be filled with approved filler and finished with approved mastic. The rate shall be deemed to include 200/20 Plain Concrete Topping to Walls. The size of the topping shall be taken from Architectural Drawings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Hollow block walling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>10 cm thick</td>
<td>30</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>20 cm thick for walls and roof parapet</td>
<td>15</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 / D / 1
<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>METALWORK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>The Contractor shall provide all requisite Plant, Labor and Materials for the Full and Proper execution of the Works</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Galvanized steel handrails:</strong> 1- Painting: One coat of galvanized steel primer and two coats of Anti-sulfur oil paint hummer type (color to be according to notes at architectural drawings)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Stair case side handrail 50 mm dia fixed to wall with SS special elbow for side handrail. Handrail is to be fixed at 900 mm high. Works to be according to drawings and DOW’s instructions</td>
<td>285</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Ramps parapet handrail composed of 50mm dia GS tube with 50mm dia GS prost each 700 mm. Three horizontal 12X12 mm rods.</td>
<td>100</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Ramps side handrail 50 mm dia fixed to wall with SS special elbow for side handrail. Handrail is to be fixed at 900 mm high. Works to be according to drawings and DOW’s instructions</td>
<td>100</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stainless steel 316 L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>38mm external diameter disabled grab rail set for toilets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Brand named EU manufactured SS 1” internal diameter grab rail set for handicapped assistance to be used for toilet seat (The set includes one movable part and one angle fixed part). The set is to be fully backed by manufacturer, all bolts, accessories and fixation parts should be of the same package of the original manufacturer. All according to DOW’s instructions</td>
<td>3</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepare and Submit for the Director of Works approval, shop drawings, catalogues and samples for Supplying and fix in position Plastic signs. Fonts, accessibility symbols, texture (raised or Brail) and colors are all as shown on Relevant Drawings. Size shall be adequate to contain requested symbols and written information. Rate shall be deemed to include but not limited to hardware, Hangers, brackets, Base plates, Bolts, welding, etc....Rate shall also include Symbols, fonts, colors and painting. The Works shall be carried out according to the Director of works instruction.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Emergency exit signs</td>
<td>12</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Room sign, fixed to wall</td>
<td>60</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Wheelchair Symbol Accessibility signs</td>
<td>10</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Administration section signs</td>
<td>6</td>
<td>no</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Page 7 Total**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>G</td>
<td>1</td>
</tr>
</tbody>
</table>
## FINISHING

### INSITU FINISHING

**Plaster to B.S. EN 139142 -2: 2005; completed with proper manner and accordance the detail drawings and specifications.**

**Internal plastering, 20 mm thick**

<table>
<thead>
<tr>
<th>Ref</th>
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<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>To walls</td>
<td>70</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td><strong>Render, to B.S. EN 139141 1-: 2005; completed with proper manner and accordance the drawings and UNRWA ICIP specifications and particular specification</strong></td>
<td>100</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TILE FINISHINGS

**Ceramic wall tiles, group BIII, pointing with a special pointing material, wall to be executed in accordance with EN 1441 (code of practice for wall and floor tiling). Pointing with a special pointing material. Samples showing quantities and colors of tiles are to be submitted to the director of work for testing and approval prior to commencement of the works. Tiles shall comply with the following:**

**To walls**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>8 mm, glazed ceramic tiles, laid on 20 mm thick mortar backing (1:3). Colors to be decided during construction.</td>
<td>50</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chinese granite or approved equal of 30 mm thickness, first quality pointing with a special pointing material, and polishing**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td><strong>Thresholds</strong></td>
<td>4</td>
<td>m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tactile Guide Plastic Bars floor marking as directional line-type blocks consist of 275mm X 34mmX 5 mm High anti-skid resistance, bolted fixation with heavy duty bolts from same manufacture, heavy duty Plastic bars to shape the indicated pathway for the visual impaired persons. The prices include surface preparation, extra 5% quantity for maintenance purposes and all needed works to complete the job as per relevant standards. Color as per DOW approval.**

**Line type**

<table>
<thead>
<tr>
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<th>Description</th>
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<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Externally bolted type rubber or plastic rulers of size 275mm length X 34mm width X 5mm height, color to be indicated by DOW. Area is measured superficially as it would be fixed to form a square area.</td>
<td>3700</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tactile floor marking as self adhesive dot-type blocks 27mm diameter points and 4mm height anti-skid resistance bolted or glued fixation with heavy duty bolts or glue from same manufacture, heavy duty Plastic dotted points to shape the indicated pathway for the visual impaired persons. The prices include surface preparation, adhesive material, extra 5% quantity for maintenance purposes and all needed works to complete the job as per relevant standards. Color as per DOW approval.**

**Dot-type**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>Internally self adhesive rubber or plastic glued dotted points of 27mm outer diameter and 4mm height, color to be indicated by DOW. Area is measured superficially as it would be fixed to form a square area.</td>
<td>20000</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
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</table>

**Dot-type**

<table>
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<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Externally bolted type rubber or plastic bolted dotted points of 27mm outer diameter and 4mm height, color to be indicated by DOW. Area is measured superficially as it would be fixed to form a square area.</td>
<td>12000</td>
<td>No.</td>
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## Renovation Works At UNRWA's HQA

<table>
<thead>
<tr>
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<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>EXTERNAL WORKS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>PATHS, PAVINGS, AND STEPS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>External Works</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Precast Cement tiles 400X400X40mm to be laid on top of cement sand mortar 20 mm thick on top of concrete slab min thickness of 100 mm (measured else where). Color and shape is according to Drawings and instructions of DOW's cement floor tiles.</td>
<td>65</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Supply and lay 400X400X40 mm precast cement tiles as detailed on drawings. The unit rate shall be deemed inclusive of all and where required mitered and/or straight cutting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Page 9 Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 / R / 1</td>
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## BILL NO. 1 SUMMARY

Renovation Works At UNRWA's HQA

Accessibility improvement and fire-safety enhancement of UNRWA’s HQ Amman buildings

<table>
<thead>
<tr>
<th>Work Group</th>
<th>Page</th>
<th>Total (U.S $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEMOLITION, RENOVATION, DISMANTLING AND ALTERATIONS</td>
<td>1/A/1-1/A/3</td>
<td></td>
</tr>
<tr>
<td>CONCRETEWORK</td>
<td>1/C/1</td>
<td></td>
</tr>
<tr>
<td>BLOCKWORKS</td>
<td>1/D/1</td>
<td></td>
</tr>
<tr>
<td>METALWORK</td>
<td>1/G/1</td>
<td></td>
</tr>
<tr>
<td>FINISHING WORKS</td>
<td>3/H/1</td>
<td></td>
</tr>
<tr>
<td>EXTERNAL WORKS</td>
<td>1/R/1</td>
<td></td>
</tr>
<tr>
<td>TOTAL BILL NO. 1</td>
<td>U.S.$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/Z</td>
<td>1</td>
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</tbody>
</table>
CONSTRUCTION OF STEEL STRUCTURE BRIDGE AT UNRWA'S HQ AMMAN

TENDER NO.
Demolition Works: The Contractor shall visit the site and make all investigations deemed necessary to ascertain the nature of the existing conditions of the structure to be demolished and/or to receive any alterations, and satisfy himself as to the form and nature of works to be carried out, and the existing Site Conditions. The Contractor shall obtain the Director of Works approval in writing, before carrying out any investigations. It shall be clearly understood that all salvaged materials and fittings arising from the demolished works shall become the Contractor’s property unless otherwise specified in the brief prepared by the Director of Works, and shall be removed from the site.
As the On-Site storing of salvaged materials and or debris shall not be allowed; the Contractor shall therefore remove it from the site on Daily Basis.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Breaking out completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Removing existing floor tiles at bridge's area ground floor.</td>
<td>15</td>
<td>m2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>The whole existing ground concrete slab at the locations of the new proposed foundations. The work is to be according to the project's drawings and DOWs instructions</td>
<td>1.5</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Demolish existing bridge including internal and external finishing, structural steel elements, block walls, floor finish, circular columns, roof insulation, aluminum work .. Etc.. The work is to be according to the project's drawings and DOWs instructions.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Dismantling and re-fixation of Electrical flexures, boards, lines, conduits etc. Work shall insure keeping existing systems operational during and after construction period.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Dismantling and re-fixing existing HVAC devices, lines, conduits etc. Work shall insure keeping existing systems operational during and after construction period.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Construction of Steel Structure Bridge At UNRWA's HQA**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F</strong></td>
<td>Demolishing existing hollow block walls, concrete sills, lintels.. Etc.. as shown at drawings, the work includes disposing all debris out of site as instructed by DOWs</td>
<td></td>
</tr>
</tbody>
</table>
| **G** | Dismantling existing aluminum windows to prepare the wall for demolishing. The work is according to the drawings and DOWs instructions | 1 | No.  
| **H** | Dismantle and re fix existing doors, the work includes to store the material in proper way according to the instructions of DOWs. | 4 | No.  
| **I** | Dismantling existing suspended ceiling system. | 17 | m²  
| **J** | Dismantling existing firefighting system, Pipes, valves etc. Work shall insure keeping existing systems operational during and after construction period. | 1 | item  

<p>| | | |</p>
<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
</table>
| **Page 1 Total** | **2** | **A** | **1**  

1/A/3
**EXCAVATION AND EARTHWORKS**

All works disturbed due to the Contractor’s activities on site shall be made good at his own expense. The contractor shall visit the site and make all investigations deemed necessary to ascertain the nature of the existing conditions, and satisfy himself as to the form and nature of work to be carried out, and the existing conditions.

1. The Contractor shall be held responsible for any damage caused by him, his work people, sub-contractors or suppliers during the execution of the Contract and shall bear the cost of making good any damage to the entire satisfaction of the DOWs. The Contractor shall keep all private corridors clean and free from dirt and debris and any obstruction associated with the works, which would prejudice the safe and unimpeded normal use of the said roads and paths.

The Cost of the above-mentioned requirements shall be deemed included in the unit rates of excavation work items.

**EXCAVATION**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>For foundations</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Removing from site</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>1</td>
<td></td>
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</tr>
</tbody>
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2 /
<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
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<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>CONCRETEWORK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Reinforced concrete 300/20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Foundations</td>
<td>1</td>
<td>m³</td>
<td></td>
<td>1 m³</td>
</tr>
<tr>
<td></td>
<td>Generally: for foundations. Work to include supply and install 4 M 16 mm grade 8.8 anchorage bolts and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>250X250X15 mm GS plate for each foundation to be ready for UC fixation, supply and apply grouting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>material for adjusting the steel plates according to drawings and DOW's instructions. Price shall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>include bolts testing by certified material lab.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Suspended composite section slabs (Decks)</td>
<td>16</td>
<td>m²</td>
<td></td>
<td>16 m²</td>
</tr>
<tr>
<td></td>
<td>140mm overall thick reinforced concrete composite slab, the work includes supply and install steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>slab deck 1.2mm thick to receive concrete, all required steel 16mm dia 100mm high studs, restrained</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>straps, edge trim galvanized steel 1 and 1.2 mm thick permanent edge formwork, etc. work includes all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>joints welding, bolting, joint plates and proper fixation. All bolts grades and sections details as</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>shown in drawings and to the instructions of DOWs. Contractor is to submit shop drawings and method</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of statement for fixing from certified manufacturer to be approved by DOW's.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>140mm thick reinforced concrete composite slab including up stand edge R.C beams 200 mm high X 150</td>
<td>16</td>
<td>m²</td>
<td></td>
<td>16 m²</td>
</tr>
<tr>
<td></td>
<td>mm width for top roof, the work includes supply and install steel slab deck 1.2mm thick to receive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>concrete, all required steel 16mm dia 100mm high studs, restrained straps, edge trim galvanized steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 and 1.2 mm thick permanent edge formwork, etc. work includes all joints welding, bolting, joint</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>plates and proper fixation. All bolts grades and sections details as shown in drawings and to the</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>instructions of DOWs. Contractor is to submit shop drawings and method of statement for fixing from</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>certified manufacturer to be approved by DOW's.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Composite section columns</td>
<td>4</td>
<td>No.</td>
<td></td>
<td>4 No.</td>
</tr>
<tr>
<td></td>
<td>Ground, first and second floor Concrete-steel composite section columns according to the size shown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in drawings. Work includes supplying and casting concrete with needed reinforcement bars, supplying</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and fixing UC HE 160 A columns, bolts, plates, stiffeners, welding and all needed to make good all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>works. All works to be according to the drawings and instructions of DOW's.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|     | **Page 6**                                                                                           |     |       |      |                |
|     | **Total**                                                                                            | 2   |     |      | 2 / C / 1      |
### Construction of Steel Structure Bridge At UNRWA’s HQA

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>BLOCKWORK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Block walls and Sundries</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Concrete blocks type A compressive strength 35 kg/cm²</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reinforced Concrete 200/20 Dummy Columns and lintels; the dummy columns</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>should be used for all windows jambs as well as for timber and metal door</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>jambs. All joints between any concrete and hollow block walling should be</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>filled with approved filler and finished with approved mastic. The rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>shall be deemed to include 200/20 Plain Concrete Topping to Walls. The size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of the topping shall be taken from Architectural Drawings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Hollow block walling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>15 cm thick</td>
<td>30</td>
<td>m²</td>
<td></td>
<td>2 / 1</td>
</tr>
</tbody>
</table>

---

1/A/6
## Construction of Steel Structure Bridge At UNRWA's HQA

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>STEEL STRUCTURE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>All structural steel members are to be of mild steel sections S275. All works shall be according to the design drawings with no allowances for any changes in size, shape, joints or structural element size. All welding must be of 3.25mm rods. Calculation sheet is to be submitted by the contractor to all structural steel members prior to work and should be certified by DOWs. Full set of shop drawings to be submitted and certified.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Reinforced concrete connection to slab consists of two 250X250X12 mm steel plates, 4M16 grade 8.8 bolts. The work includes punching the slab to enable bolts penetrating the existing concrete GF roof slab.</td>
<td>4</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Bridge beams steel structure including all detailed IPE 300, IPE 180 members according to the attached contract drawings and sections. The work includes bolts, joints, welding, mastic, end plate, stiffener plates, etc. All works must be according to the contract's drawings and DOW instructions.</td>
<td>1</td>
<td>item</td>
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</tbody>
</table>

### Total

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</tbody>
</table>

Page 21
## METALWORK

The Contractor shall provide all requisite Plant, Labor and Materials for the Full and Proper execution of the Works.

### Aluminum

Curtain Wall (The given dimensions represent the Structural openings {S.0}. The exact size of the Curtain Wall must be checked and verified on site prior to fabricating any unit). Fabricate, Supply and Install in position Double glazed aluminum Curtain Wall complete with sub frame, frame, 6 mm thick clear tempered glass for inner panels and 6mm thick outer tempered reflecting glass, 6mm thick air space filled with argon gas, and butyl framing rubber, perforated inner separation aluminum frame and polysulphide mastic between aluminum frame and glass including double cavity bottom track, automatic locks and all necessary frames, sub-frames, fixing, fittings, accessories Neoprene weather stripping and hardware, all as shown on drawings. All needed accessories must be certified from aluminum Profile origin manufacturer.

### Curtain Wall

Aluminum curtain walls system type 8300 or equivalent, the works including submitted shop drawings and calculation to be approved, complete with all Awning windows in the elevations,min.12 extra opening the rate should be deemed to include fixing of all plates and expansion joint each 6 m including all needed material, and all necessary fitting and materials to put the system in operation and protection from water, silicone sealant, ironmongery, and hardware; all in the line with tender drawings. The used glass is double glazed each of 6mm thick with 6mm air gap, blue reflecting colored and tempered type for outer and tempered clear for inner. The price include sound insulation between floors using Rockwall & steel sheets as per drawings. Price also includes installation of aluminum type 2000 or equivalent doors size to match shop drawing and all needed switches and security locks as shown in drawings.

<table>
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<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
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<th>Rate</th>
<th>Total (U.S $)</th>
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<tr>
<td>A</td>
<td>Aluminum curtain walls system type 8300 or equivalent, the works including submitted shop drawings and calculation to be approved, complete with all Awning windows in the elevations,min.12 extra opening the rate should be deemed to include fixing of all plates and expansion joint each 6 m including all needed material, and all necessary fitting and materials to put the system in operation and protection from water, silicone sealant, ironmongery, and hardware; all in the line with tender drawings. The used glass is double glazed each of 6mm thick with 6mm air gap, blue reflecting colored and tempered type for outer and tempered clear for inner. The price include sound insulation between floors using Rockwall &amp; steel sheets as per drawings. Price also includes installation of aluminum type 2000 or equivalent doors size to match shop drawing and all needed switches and security locks as shown in drawings.</td>
<td>50</td>
<td>m2</td>
<td></td>
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</table>

**Page 21**

<table>
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## Construction of Steel Structure Bridge At UNRWA's HQA

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<tr>
<td></td>
<td><strong>FINISHING</strong></td>
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<tr>
<td></td>
<td><strong>INSITU FINISHING</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plaster to B.S. EN 139142 -2: 2005; completed with proper manner and accordance the drawings and specifications.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internal plastering, 20 mm thick</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>To walls</td>
<td>90</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>External Acrylic paint with marble chipping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For finish color refer to notes at architectural drawings or DOW instructions</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>B</td>
<td>Acrylic paint with marble chipping; the glue bond (original material for external use of approved data sheet according to EU standards) should be at least 12-15% of total volume of materials, the rate should be include preparing and priming the surface according to manufacture instructions and to the full approval and satisfaction of DOW. Colors and decoration included in the rate and will be chosen by the DOW</td>
<td>3</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TILE FINISHINGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Porcelain tiles Group Bla, pointing with a special pointing material, wall and floor to be executed in accordance with B.S. 5385-1, B.S. 5385-2 and B.S. 5385-3 (code of practice for wall and floor tiling). Pointing with a special pointing material. Samples showing quantities and colors of tiles are to be submitted to the director of work for testing and approval prior to commencement of the works. Tiles shall comply with porcelain tiles specifications in particular specifications.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>To floors</td>
<td>80</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>400 x 400 x 8 mm, non-slip, laid on 20 mm thick mortar bed (1:3), on 50-250 mm thick sand bed. Colors to be decided during construction.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>100 mm high x 8 mm thick, laid on 10 mm thick mortar backing (1:3)</td>
<td>50</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th><strong>Page Total</strong></th>
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<tr>
<td></td>
<td>2 / G / 1</td>
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<tr>
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</tr>
<tr>
<td>Chinese granite or approved equal of 30 mm thickness, first quality pointing with a special pointing material, and polishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thresholds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>150 mm wide x 30 mm thick, chamfered once, rebated once, laid on 20 mm thick mortar bed, on 50 mm thick plain concrete 200/20 kicker where required.</td>
<td>6</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>False ceiling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>600 x 600 x 9mm ceiling tiles , complete with and including suspension system. The plenum height is to be verified from site. The whole work shall be carried out according to manufacturers instructions and to the approval of the Director of Works. Exposed Grid Suspension ceiling should be of galvanized steel, heavy duty of 6cm min height, 24mm face dimension of color as per DOW, all in accordance with EN 13964 Suspended Ceilings – Requirements &amp; Test Methods. Product to be manufacture to EC with EC marking on all products.</td>
<td>35</td>
<td>m²</td>
<td></td>
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</table>

**Total**

2 / G / 2
| COLLECTION |   |   |   |   |
| FINISHINGS |   |   |   |   |
| page       | 2/G/1 |   |   |   |
| page       | 2/G/2 |   |   |   |

<p>| Page 30 Total | 2 / G / 3 |   |   |   |</p>
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<th>Rate</th>
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<tr>
<td>A</td>
<td>Rainwater shoe</td>
<td>5</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>110 mm (4”) internal diameter, cast into concrete</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Roof Gutter</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>110 mm (4”) internal diameter, with one bend at the end</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Roof Gutter</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GS 2mm thick C channel roof gutter to collect roof rainwater into the main downpipes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Roof outlet</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>110 mm (4”) internal diameter, complete with wire mesh bird screen</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>E</td>
<td>Cement and sand angle fillet (45º)</td>
<td>12</td>
<td>mr</td>
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</tr>
<tr>
<td></td>
<td>lining and hunching 80x80 mm with (45’) to the edge of roof screed and parapet</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>F</td>
<td>Foam concrete with maximum density of 450 kg/m3</td>
<td>16</td>
<td>m²</td>
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<tr>
<td></td>
<td>50 mm average thickness slope to drain, with a minimum thickness of 10 mm at rainwater outlets</td>
<td></td>
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Total

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Page 37
## Construction of Steel Structure Bridge At UNRWA’s HQA

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<tr>
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<td><strong>PAINTING AND DECORATING</strong></td>
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</tr>
<tr>
<td></td>
<td><em>Painting Works</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prime and apply two coats Internal quality Emulsion Paint, colors and surfaces to be decided during construction.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td><em>To Renovate the Walls internally</em></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A</td>
<td>the unite rate shall include renovating all walls to match existing surrounding paint finish, executing of works is to be according to specifications and DOWs instructions</td>
<td>90</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 46

Total

2 / J / 1
## ELECTRICAL INSTALLATION

Electrical works and products should be of high quality from recognized brands and should be done according to UNRWA drawings and specifications and engineer instructions; while the rate should include electrical wiring, telephone wiring, data wiring, and junction boxes; lighting fixtures shall include all types of lamps, all accessories required, where the cost of testing and commissioning and connecting the cables to switchboards and fittings.

### Light switch

Supply, install, and connect the following lighting switches, the work includes 0.75” PVC conduit, wires, imbedding into walls and all needed finishing works.

**A** 10A - 220V one gang, two ways lighting switch, 8 no

### Ceiling light point

Supply, install, and connect the following lighting fixtures, the work includes 0.75” PVC conduit, wires, imbedding into walls above false ceiling, ceiling roses, and all needed finishing works.

**B** IP-44 recessed mounted down light with aluminum body and polycarbonate optic and reflector, 28W LED, not less than 2000 lumens and life span 50000 hours, with light color 3000 K. Type-Philips or equivalent, 12 no

### Conduits and ducts

Provide and cast into concrete or built into block work.

**C** 1.5 x 1.5 cm PVC duct, 40 m/

**D** 2.5 x 2.5 cm PVC duct, 40 m/

### Connections

Electrical connection cables

Supply, install and connect the following XLPE cables, this work including cables’ lugs with all accessories and connections needed as instructions of D.O.W.

**E** XLPE cable 3x2.5mm², 100 m/

### Miscellaneous

Supply and install MCB-1X15A inside existing sub-distribution board including wires, DIN rails, connection terminals and all needed accessories.

**F** 2 no

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<th>Unit</th>
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<td>Electrical works and products should be of high quality from recognized brands and should be done according to UNRWA drawings and specifications and engineer instructions; while the rate should include electrical wiring, telephone wiring, data wiring, and junction boxes; lighting fixtures shall include all types of lamps, all accessories required, where the cost of testing and commissioning and connecting the cables to switchboards and fittings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Light switch</td>
<td></td>
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<tr>
<td></td>
<td>Ceiling light point</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Conduits and ducts</td>
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<td>Connections</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Supply, install and connect the following XLPE cables, this work including cables’ lugs with all accessories and connections needed as instructions of D.O.W.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Supply and install MCB-1X15A inside existing sub-distribution board including wires, DIN rails, connection terminals and all needed accessories.</td>
<td></td>
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## BILL NO. 2 SUMMARY

### MAIN BUILDING

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<th>Work Group</th>
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<td>DEMOLITION AND ALTERATIONS</td>
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<tr>
<td>EXCAVATION AND EARTH WORKS</td>
<td>2/B/1</td>
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<tr>
<td>CONCRETEWORK</td>
<td>2/C/1</td>
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<td>BLOCK WORK</td>
<td>2/D/1</td>
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<tr>
<td>STEEL STRUCTURE</td>
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<td>EXTERNAL PLUMBING</td>
<td>2/H/1</td>
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<tr>
<td>ELECTRICAL WORKS</td>
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### TOTAL BILL NO. 2

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<tr>
<td>2 /</td>
<td>Z / 1</td>
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</table>
CONSTRUCTION OF CONFERENCE HALL

TENDER NO.
### DEMOLITION AND ALTERATIONS

Demolition Works shall be done accordance with the drawings and specifications. It shall be clearly understood that all salvaged materials and fittings will be contractor's property except air conditions, fans, and data and sound system fitting to be Agency's property; and must be handed over to UNRWA stores as per the Director of Works instructions; for more details refer to rule of measurements. As the On-Site storing of salvaged materials and or debris shall not be allowed, the Contractor shall therefore remove it from the site on Daily Basis.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Carefully breakout existing concrete floor slab under the proposed steel staircase and the works include remove all debris out of site. Area is approximate 20m²; all as shown in drawings and to the instructions of DOW.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Carefully break out existing parapet wall up stand beams 30 cm, prepare the exposed surfaces for the new construction, and remove all arising from site.</td>
<td>55</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Carefully break out top part of existing slab min. size 30cmx45cm and 10 cm deep, including drilling in existing columns and fixing reinforcement steel dowels by epoxy material; all works is in accordance to full satisfaction and approval of DOW and as shown on the drawings. contractor shall submit method of statement of applying all epoxy materials according to manual of products issued by manufacturer.</td>
<td>11</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Carefully demolish existing walls, sills, lintels, and etc.. The works include remove all debris out of site the; all as shown in drawings and to the instructions of DOW.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Strip off completely existing roofing material and prepare slab to receive new finish. The rate shall be deemed to include breaking out existing concrete screed and/or foam concrete; Price shall include slab repair for any defects using proper epoxy materials and remove all debris from site; all works should be as instructions and approved by DOWs.</td>
<td>110</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Carefully dismantle and remove the existing aluminum windows, window sills and security screens as shown in drawings and according to the instructions of DOW.</td>
<td>5</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Carefully peel off external Tyrolean finishing and prepare the surface to receive new internal finishing. All works are according to the drawings and instructions of DOW's.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 1 Total

| 3   | A   | 1   |
### ALTERATIONS

Alteration Works shall be done accordance with the drawings and UNRWA ICIP specifications. It shall be clearly understood that all salvaged materials and fittings will be contractor’s property except air conditions, fans, and data and sound system fitting to be Agency’s property; and must be handed over to UNRWA stores as per the Director of Works instructions.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
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<tbody>
<tr>
<td>A</td>
<td>Carefully dismantle the existing fuel tank shed. The works including removing and re-fixation of steel security fence; steel door and top corrugated roof cover with all its purlins and beams. Roof corrugated roof cover will be replaced by aluminum Sandwich panel roof (will be measured elsewhere). The work includes fabricating and supplying all needed accessories, welding, bolts, replace damaged parts and paint all elements. All work to be as shown in drawings and to the instructions of the.</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Carefully dismantle, transport and re-fix in another location (shown in drawings) the existing fuel tank. The work includes all needed connections, pipes all types, fittings, support system and making the boilers operational at the tank new location. All works shall be according to the instructions of DOWs.</td>
<td>1</td>
<td>no.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Carefully dismantle existing door and frame, change its opening direction. Work includes comprehensive repair to the door including any defected parts of leaf or frame, accessories or irrogominry. Work includes also to paint the door with one primer layer, two tar coats and two oil paint coats. All works shall be according to drawings and instructions of DOW’s.</td>
<td>1</td>
<td>No.</td>
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</table>

### COLLECTION

**ALTERATION WORKS**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dismantle carefully adjusting and re-fixing again Dismantle the existing boiler room Steel Door frame and leaf to another location and to make all necessary actions to resize the door and frame size as shown in drawings. Make needed adjustments. Works includes any cutting, welding, frame adjustment and painting.</td>
<td>1</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Page 2 Total**

<table>
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<tr>
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<tbody>
<tr>
<td>A</td>
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**Page 3 Total**

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
All works disturbed due to the Contractor's activities on site shall be made good at his own expense. The contractor shall visit the site and make all investigations deemed necessary to ascertain the nature of the existing conditions, and satisfy himself as to the form and nature of work to be carried out, and the existing conditions.

1. The Contractor shall be held responsible for any damage caused by him, his work people, sub-contractors or suppliers during the execution of the Contract and shall bear the cost of making good any damage to the entire satisfaction of the DOWs. The Contractor shall keep all access to existing ground floor, yards and paths clean and free from dirt and debris and any obstruction associated with the works, which would prejudice the safe and unimpeded normal use of the said roads and paths.

The Cost of the above-mentioned requirements shall be deemed included in the unit rates of excavation work items.

**Excavate from reduced level or natural ground level whichever is lower**

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>For raft foundation</td>
<td>5</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Removing from site</td>
<td>5</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Imported granular fill (Base Course)</td>
<td>5</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Page 4 Total**

3 / B / 4
<table>
<thead>
<tr>
<th>Ref</th>
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<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>CONCRETEWORK</strong>:-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All concrete works to be according to specifications and standards, no works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to be started before submission of method of statement of works and a</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>comprehensive contractor's safety plan at site. All works are to be</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>approved and according to DOW's instructions.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>INSITU CONCRETE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Plain concrete 200/20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Blinding beds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Generally</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Nominally Reinforced Concrete 250/20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Generally</td>
<td>5</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decoration, upward and downward decoration, decoration dummy columns and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arches and expansion joints cover, corridor, staircase &amp; roof parapets.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>120mm thick decorative wall on top of parapet to shape the decorative</td>
<td>3</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>front facade of the new constructed hall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Reinforced concrete 300/20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Foundations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Generally; for foundations. Work to include supply and install 4 M 16</td>
<td>6</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm grade 8.8 anchorage bolts and 250X250X15 mm GS plate for each foundation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to be ready for UC fixation, supply and apply grouting material for</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>adjusting the steel plates according to drawings and DOW's</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>instructions. Price shall include bolts testing by certified material lab.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Generally</td>
<td>3</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Generally</td>
<td>1</td>
<td>m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Suspended composite section slabs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>140mm thick reinforced concrete composite slab with edge 150mm height up</td>
<td>120</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stand beam. The work includes supply and install steel slab deck to receive</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>concrete, all required steel studs, Steel main beams UB IPE 300 and</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>secondary beams UB IPE 180, work includes all joints welding, bolting,</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>joint plates and proper fixation. Work also includes polystyrenes board</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>insulation between the new slab and the existing building. All bolts</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>grades and sections details as shown in drawings and to the instructions of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DOW's.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Ground, first and second floor Concrete-steel composite section columns</td>
<td>11</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>according to the size shown in drawings. Work includes supplying and</td>
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<tr>
<td></td>
<td>casting concrete with needed reinforcement bars, supplying and fixing UC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HE 160 A columns, bolts, plates, stiffeners, welding and all needed to</td>
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<td></td>
<td>make good all works. All works to be according to the drawings and</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>instructions of DOW's.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ref</td>
<td>Description</td>
<td>Qty</td>
<td>Unit</td>
<td>Rate</td>
<td>Total (U.S $ )</td>
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<tr>
<td></td>
<td><strong>BLOCKWORK</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>The Contractor shall manufacture and provide hollow and solid blocks for walls</td>
<td></td>
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<tr>
<td></td>
<td>Concrete blocks type A compressive strength 35 kg/cm². The rate shall be deemed to include Reinforced Concrete 200/20 Dummy Columns and lintels; the dummy columns should be used for all windows jambs as well as for timber and metal door jambs. The size and reinforcement of the lintels shall be taken from structural drawings. All joints between any concrete and hollow block walling should be filled with approved filler and finished with approved mastic. The rate shall be deemed to include 200/20 Plain Concrete Topping to Walls. The size of the topping shall be taken from Architectural Drawings.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Hollow block walling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>20cm thick</td>
<td>70</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>15 cm thick</td>
<td>90</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Double walling consists of 10 cm thick hollow block wall, 5 cm rock wool 60kg/m³ density and 10 cm thick hollow block. Work also includes all needed accessories to fix rock wool and all parts needed for work. All works are according to drawings and instructions of DOWs.</td>
<td>70</td>
<td>m²</td>
<td></td>
<td></td>
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</table>

**Page 6 Total**

3 / D / 6
<table>
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<tbody>
<tr>
<td></td>
<td><strong>STEEL STRUCTURE</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>All structural steel members are to be of mild steel sections S275. All</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>works shall be according to the design drawings with no allowances for any</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>changes in size, shape, joints or structural element size. All welding</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>must be of 3.25mm rods. Calculation sheet is to be submitted by the</td>
<td></td>
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<tr>
<td></td>
<td>contractor to all structural steel members prior to work and should be</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>certified by DOWs. Full set of shop drawings to be submitted and certified.</td>
<td></td>
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<tr>
<td></td>
<td>Work also includes submission of comprehensive method of statement of all</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>steel structure members and safety plan.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>STAIRCASE STEEL STRUCTURE</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>A</td>
<td>Fabricate, supply and install in position a composite steel Stair case,</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>steps consist of steel Stair treads fill with Plain concrete B250/20,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stair risers, steel landings fill with Plain concrete B250/20, steel</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>structure stringer and platform, main and secondary beams and posts; all</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>according to the attached tender drawings and sections. The work includes</td>
<td></td>
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<tr>
<td></td>
<td>fixation, metal flashing bolts, joints, welding etc.; priming two coats of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>unit rust primer and two coat fire proof protection paint for all steel</td>
<td></td>
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<tr>
<td></td>
<td>elements; all works must be according to the contract's drawings and DOW</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>instructions and approved.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>CARPENTRY AND JOINERY</strong></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>The Contractor shall provide all requisite Plant, Labor and Materials for</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>the Full and Proper execution of the Works</td>
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<tr>
<td></td>
<td><strong>LOGO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Fabricate, supply, and install in position UNRWA logo made of hard wood</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20mm thick made by CNC technology to be fixed on internal walls by using</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>covered counter sunk bolts, priming and painting, as detailed in the</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>drawings for elevation No.1 with sizes (2.0 m x 1.0 m)</td>
<td></td>
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</tr>
</tbody>
</table>
### METALWORK

The Contractor shall provide all requisite Plant, Labor and Materials for the Full and Proper execution of the Works.

**Aluminum**

Window (7000 series) (The given dimensions represent the Structural openings (S.O.). The exact size of the Window must be checked and verified on site prior to fabricating any unit). Fabricate, Supply and Install in position Double glazed aluminum window complete with sub frame, frame, 6 mm thick clear glass for inner panels and 6mm thick reflecting glass outer panel and 6mm thick air space filled with argon gas, and butyl framing rubber, perforated inner separation aluminum frame and polysulphide mastic between aluminum frame and glass including double cavity bottom track, top hung aluminum woven mesh fly screen, automatic locks and all necessary frames, sub-frames, fixing, fittings, accessories Neoprene weather stripping and hardware, all as shown on drawings.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Type W1, overall size 100X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>3</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Type W2, overall size 80X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>6</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Type W3, overall size 75X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>3</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Type W4, overall size 150X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>4</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Type W5, overall size 180X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Type W6, overall size 200X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>5</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Type W7, overall size 95X170 cm, complete with frame, glazing, silicone sealant, ironmongery, and hardware</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Type AL1 Aluminum door (2000 series), overall size 120X225 cm, complete with frame, double glazing, silicone sealant, ironmongery, and hardware</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Curtain wall**

Aluminum curtain walls 8300 system (CW), the works including submitted shop drawings and calculation to be approved, complete with all awning windows in the elevations. The rate should be deemed to include fixing of all plates and expansion joint each 6 m including all needed material, and all necessary fitting and materials to put the system in operation and protection from water, silicone sealant, ironmongery, and hardware; all in the line of UNRWA tender drawings. The used glass is double glazed each of 6mm thick with 6mm air gap, blue colored and tempered type.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Aluminum curtain walls 8300 system (CW), the works including submitted shop drawings and calculation to be approved, complete with all awning windows in the elevations. The rate should be deemed to include fixing of all plates and expansion joint each 6 m including all needed material, and all necessary fitting and materials to put the system in operation and protection from water, silicone sealant, ironmongery, and hardware; all in the line of UNRWA tender drawings. The used glass is double glazed each of 6mm thick with 6mm air gap, blue colored and tempered type.</td>
<td>24</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Perforated Aluminum Decorative Panels**

Aluminum Decorative 6mm thick panels to be shaped by using CNC. Work includes frame (Aluminum 2000 series profiles min thickness of 1.25 mm) and fixation by SS bolts. Shape and color is to be according to the drawings and the instructions of the DOW’s.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>Aluminum Decorative 6mm thick panels to be shaped by using CNC. Work includes frame (Aluminum 2000 series profiles min thickness of 1.25 mm) and fixation by SS bolts. Shape and color is to be according to the drawings and the instructions of the DOW’s.</td>
<td>20</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Page 21 Total**

3 / G / 1
<table>
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<tr>
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<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
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<tbody>
<tr>
<td>A</td>
<td>Supply and install external decorative European made PVDF type aluminum 4mm thick composite panes. The work includes preparation of fully detailed shop drawings and calculation sheets for the panels suspension system and decorative shape. Colors and geometry is according to DOW’s instruction and the contractual Arch scheme that is shown in drawings. Work also includes supply and install all needed accessories for the work, all accessories are to be certified by the same main manufacturer.</td>
<td>20</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Aluminum Sandwich Panel to be fixed vertically to the side walls of staircase 0.5 mm thick for external and 0.4mm thick for internal galvanized double corrugated roof sheeting (painted with 25 microns of Silicon Polyester paint from both sides, (type is (PL 40-250/4) or equal approved) with 5 cm rock wool inner insulation; including Galvanized steel screw with PVC rubber to prevent leakage Work also includes all need GS side berlins and profiles to enable proper fixation of sandwich panels.</td>
<td>25</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Type MD1 , overall size 100 x 225cm made of GS sheets 1.25mm thick, complete with GS frame 1.5mm thick, channels, sheet metal, stop, ironmongery, hardware, lock, and painting, all as detailed on contract drawings. The door should be 90minutes fire retardant with UL certificate. it should be filled with heat isolating material (such as rock wool 60kg/m3 density). Door should be according to all UL specifications and certified by Jordanian Civil Defense Authorities.</td>
<td>2</td>
<td>no.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Type MD2 swing door, overall size 100 x 225cm made of double GS sheets 1.25mm thick, complete with GS frame 1.5mm thick, channels, sheet metal, stop, ironmongery, hardware, lock, and painting, door also must be equipped by 300mm X 1200 mm fan light composed of 3mm thick clear polycarbonate , all as detailed on contract drawings. The door should be 90minutes fire retardant with UL certificate. it should be filled with heat isolating material (such as rock wool 60kg/m3 density). Door should be according to all UL specifications and certified by Jordanian Civil Defense Authorities.</td>
<td>1</td>
<td>no.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Type multilock MLD1, overall size 100 x 225cm made of GS double sheets 1.25mm thick, complete with GS frame 1.5mm thick, channels, sheet metal, stop, ironmongery, hardware, lock, and painting, door also must be equipped by 300mm X 1200 mm fan light composed of 3mm thick clear polycarbonate, all as detailed on contract drawings. The door should be 90minutes fire retardant with UL certificate. it should be filled with heat isolating material (such as rock wool 60kg/m3 density). Door should be according to all UL specifications and certified by Jordanian Civil Defense Authorities.</td>
<td>4</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Type multilock MLD1* panic door, overall size 100 x 225cm made of GS double sheets 1.25mm thick, complete with GS frame 1.5mm thick, channels, sheet metal, stop, ironmongery, hardware, lock, and painting, door also must be equipped by 300mm X 1200 mm fan light composed of 3mm thick clear polycarbonate, all as detailed on contract drawings. The door should be 90minutes fire retardant with UL certificate. it should be filled with heat isolating material (such as rock wool 60kg/m3 density). Door should be according to all UL specifications and certified by Jordanian Civil Defense Authorities.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>GS window security screen composed of 50X50X5 mm angle frame and 30X30X3mm wire mesh.</td>
<td>20</td>
<td>m²</td>
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Page 21 Total

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<th>Rate</th>
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<td><strong>ROOFING</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td><strong>ROOFING COVER</strong></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>All roofing materials shall be best quality and shall complete with proper manner and accordance with the specifications</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>ALUMINUM ROOF SANDWICH PANELS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Aluminum Sandwich Panel to be fixed on top of roof 0.5 mm thick for external and 0.4mm thick for internal galvanized double corrugated roof sheeting (painted with 25 microns of Silicon Polyester paint from both sides, type is (PL 40-250/4) or equal approved) with 5 cm rock wool inner insulation ; including Galvanized steel screw with PVC rubber to prevent leakage</td>
<td>20</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Aluminum Sandwich Panel to be fixed on top of fuel tank roof 0.5 mm thick for external and 0.4mm thick for internal galvanized double corrugated roof sheeting (painted with 25 microns of Silicon Polyester paint from both sides, type is (PL 40-250/4) or equal approved) with 5 cm rock wool inner insulation ; including Galvanized steel screw with PVC rubber to prevent leakage</td>
<td>4</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aluminum Composite &amp; acrylic textile fiber</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>The works include prepare shop drawings in line with the Agency's drawing including materials used in the logo and dimensions before starting the works (Dimensions as per the drawings space allocated) ; according to DOW instructions and full satisfactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UNRWA LOGO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Fabricate, supply, and install in position 3D UNRWA logo size of 300x350cm made of 4mm thick Aluminum Composite sheet and acrylic textile fiber for Premises name in English and Arabic and UNRWA symbols, including welded connections, priming and painting if any, all as detailed in the drawings; all The Works shall be carried out according to the Director of works instruction and after material sample and design sketch approved</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Galvanized steel handles and handrails;</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1- Painting: One coat of galvanized steel primer and two coats of Anti-sulfur oil paint hummer type (color to be according to notes at architectural drawings)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Staircase handles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>B</td>
<td>Fabricate, supply, and install in position a 900mm height 5mm thick 50mm width GS plate, complete welded to gusset tube plate diameter size 14mm and 6mm thick fixed to anchor plate diameter size 60mm and 6mm thick fixed to concrete or block by Stainless steel bolts, work includes Hard wood 50mmX50mm rounded edge handle is to be fixed on top of the 5mm thick plate</td>
<td>60</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Staircase handrail</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Stair case parapet handrail 50 mm dia GS posts fixed to stair fly side hollow section profile with GS special bolts for handrail bottom plate . Hard wood 50mmX50mm rounded edge handle is to be fixed at 900 mm and 700mm height. works to be according to drawings and DOW's instructions</td>
<td>40</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stainless steel handrail 316L</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>To top roof back side with four 12 mm dia stainless steel rods.</td>
<td>20</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>To top roof front side with 8mm thick tempered glass panels ( color is to indicated by DOW on site).</td>
<td>25</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Page 21 Total**

3 / G / 2

**COLLECTION**

**METAL WORKS**

- page 3/G/1
- page 3/G/2

**Page 30 Total**
### FINISHING

#### INSITU FINISHING

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<tr>
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<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
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<tbody>
<tr>
<td>A Internal plastering, 20 mm thick</td>
<td>250 m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Render, to B.S. EN 139141 1-: 2005; completed with proper manner and accordance the drawings and UNRWA ICIP specifications and particular specification</td>
<td>85 m²</td>
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#### TILE FINISHINGS

<table>
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<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Porcelain tiles Group Bla, pointing with a special pointing material, wall and floor to be executed in accordance with B.S. 5385-1, B.S. 5385-2 and B.S. 5385-3 (code of practice for wall and floor tiling). Pointing with a special pointing material. Samples showing quantities and colors of tiles are to be submitted to the director of work for testing and approval prior to commencement of the works. Tiles shall comply with porcelain tiles specifications in particular specifications.</td>
<td>240 m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Skirting’s, 80 mm high x 10 mm thick, laid on 10 mm thick mortar backing (1:3)</td>
<td>50 m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C Thermoplastic Polyurethanes Yellow Tactile floor tiles for marking with High anti-skid resistance mounted used to guide people who have low vision or visual impairment, it indicates either a stop or a change of direction as per detailed drawings. The prices include surface preparation; priming &amp; adhesive material from same tile manufacture with all needed works to complete the job as per relevant standards &amp; approved method statement issued from the manufacture. The tiles to be manufactured to EC.</td>
<td>800 no</td>
<td></td>
<td></td>
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### TACK TILES

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<tr>
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<th>Unit</th>
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<th>Total (U.S $ )</th>
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</thead>
<tbody>
<tr>
<td>A Internally self adhesive rubber or plastic dotted points of 27mm outer diameter and 4mm height to form 300X300 mm units to be shaped as shown on drawings, color to be indicated by DOW. Area is measured superficially as it would be fixed to form a square area.</td>
<td>800 no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B CHINESE GRANITE G 664 OR APPROVED EQUAL OF 30 mm THICK OF TOP QUALITY POINTING WITH SPECIAL PIONTING MATERIAL AND POLISING</td>
<td>40 LM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 350 mm wide X 30 mm thick stair step to be fixed to the step fair face concrete. The work includes supply and fix anti skid rubber corner angle. Fixation of angle by using the manufacturers approved adhesive material.</td>
<td>40 LM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 600 mm X 300 mm X 30mm floor tiles to be land on fair face landing concrete.</td>
<td>40 m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E 600mmX100mmX20mm skirting for staircase landings</td>
<td>40 LM</td>
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</table>
**Construction of Steel Structure Conference Room At UNRWA’s HQA**

### E

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<tr>
<th>Ref</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>150 mm wide x 30 mm thick, chamfered once, rebated once, laid on 20 mm thick mortar bed, on 50 mm thick plain concrete 200/20 kicker where required.</td>
<td>4</td>
<td>mr</td>
<td></td>
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</table>

**COLORED DECORATIVE NATURAL STONE OR APPROVED EQUAL OF 30 MM THICKNESS, FIRST QUALITY POINTING WITH A SPECIAL POINTING MATERIAL, AND POLISHING**

### F

<table>
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<tr>
<th>Ref</th>
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<th>Unit</th>
<th>Rate</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>To shape interior decorative panels at waiting hall as shown at drawings and according to the DOW’s instructions. Work includes fixation by 20 mm cement sand mortar, GS studs and pointing.</td>
<td>4</td>
<td>m²</td>
<td></td>
</tr>
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</table>

**LOCAL MARBLE OR APPROVED EQUAL OF 30 MM THICKNESS, FIRST QUALITY POINTING WITH A SPECIAL POINTING MATERIAL, AND POLISHING**

### G

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<tbody>
<tr>
<td></td>
<td>200 mm wide x 30 mm thick, polished one side and edge, laid on 20 mm thick mortar (1:3).</td>
<td>15</td>
<td>mr</td>
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</tbody>
</table>

### H

<table>
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<th>Rate</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>250 mm wide x 30 mm thick, chamfered, laid on 20 mm thick cement sand mortar bed (1:3)</td>
<td>50</td>
<td>mr</td>
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**Page 28 Total**

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<td>SUSPENDED CEILINGS</td>
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**Gypsum false ceiling**

- It should be Noise Reduction Coefficient 0.76 up to 0.90 for Acoustic, Very High Fire Resistance, Water resistant and easily washable, High resistance to surface impact, Can withstand frequent scrubbing Without loss of quality and Light Reflectance Value 85% up to 90%

### A

<table>
<thead>
<tr>
<th>Ref</th>
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<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
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<tbody>
<tr>
<td></td>
<td>Double layer decorative gypsum board 12.5mm thick to be installed by using a manufacturer certified GS suspension system. Work includes installing decorative CNC decorative MDF 16mm wood to shape the same design of ceiling as shown at drawings. Work also includes semi-transparent polycarbonate decorative lighting pannels. work includes priming, putty and emolition painting to the boards and wooden parts. Work also includes supply and install all studs, angles, bolts and according to DOW’s instructions</td>
<td>60</td>
<td>m²</td>
<td></td>
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</tbody>
</table>

### B

<table>
<thead>
<tr>
<th>Ref</th>
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<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Double layer decorative gypsum board 12.5mm thick to be installed by using a manufacturer certified GS suspension system to shape the same design of ceiling as shown at drawings. Work includes priming, putty and emolition painting to the boards. Work also includes supply and install all studs, angles, bolts and according to DOW’s instructions</td>
<td>50</td>
<td>m²</td>
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**WALL DECORATIVE GYPSUM PANNELS**

### C

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<tr>
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<tbody>
<tr>
<td></td>
<td>Supply and install according to drawings and DOW’s instructions wall decorative Gypsum panels. The work includes also decorative hard wooden shapes to be installed on top of the panels after painting (painting is measured elsewhere). Contractor is to submit a fully detailed shop drawings for all the works shapes, geometry and method of fixation on walls.</td>
<td>30</td>
<td>m²</td>
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**Page 29 Total**

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<td></td>
<td>page</td>
<td>3/H/3</td>
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<tr>
<td>Ref</td>
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<td>Qty</td>
<td>Unit</td>
<td>Rate</td>
<td>Total (U.S $ )</td>
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</tr>
<tr>
<td></td>
<td><strong>EXTERNAL PLUMBING</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>RAINWATER INSTALLATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Execute all plumbing work shown on the drawings and/or described in the Contract Documents all in accordance with this Specification and to the satisfaction of the Director of Works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>U-PVC Drainage Pipes and fittings according to BS, DIN EN 1329-1 and 1401-1 SN8</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Rainwater downpipes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>110mm nominal diameter and 3.2mm minimum wall thickness completed with a roof outlet, T junction, rainwater shoe, cap, removable wire mesh bird screen all needed fitting including jointing, fixing with hanging 2mm thick galvanized steel brackets screwed to concrete or block work additional brackets at shoe and painting as shown on the Drawings; all as shown on the Drawings and according to DOW instructions</td>
<td>15</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>UPVC pipes and fittings (SN 8), to B.S. 4576</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Supply and install 200 mm SN8 UPVC rainwater underground drainage pipe. The work includes removing gutter, surface finish (Concrete, trench, Tiles, interlock, kerbs or asphalt and excavate to the shown level. Laying pipes, back filling with clean sand and connecting the pipe to the nearest drainage system. All works are to be under DOW's supervision and according to the specifications and contract drawings.</td>
<td>15</td>
<td>LM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Supply and install precast reinforced concrete rainwater drainage manholes B300 of 60cm internal diameter. The depth is up to and including 0.85m. The work includes benching and cast iron grill lockable cover with frame 40cm opening all of 5 ton bearing capacity</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>Ref</th>
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<tbody>
<tr>
<td></td>
<td><strong>ROOFING</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>ROOFING INSULATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All roofing materials shall be best quality and shall complete with proper manner and accordance with the specifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Roof water insulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>One layer membrane with chippings, 4 mm thick membrane weight (4.6 kg/m&lt;sup&gt;2&lt;/sup&gt;), non woven polyester mat reinforcement (160gms/m&lt;sup&gt;2&lt;/sup&gt;), including priming concrete surfaces at rate 1/2(kg/m&lt;sup&gt;2&lt;/sup&gt;), dressing into rainwater outlets to form waterproof seal (measured net with no allowance for end and side laps)</td>
<td>120</td>
<td>m&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Polystyrene of 35kg/m&lt;sup&gt;3&lt;/sup&gt; density for roof thermal insulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>50mm thick polystyrene thermal insulation density 35kg/m&lt;sup&gt;3&lt;/sup&gt;, including cut to size and all needed fixing material as shown on related drawing and according to DOW instructions and approval</td>
<td>120</td>
<td>m&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td><strong>Foam concrete with maximum density of 450 kg/m&lt;sup&gt;3&lt;/sup&gt;</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>50-150 mm thickness slope to drain, with a minimum thickness of 50 mm at rainwater outlets.</td>
<td>120</td>
<td>m&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sundries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Lining and hunching 80x80 mm with (45°) to the edge of roof screed and parapet</td>
<td>50</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Page 36 Total**: 0.00

**Page 44 Total**: 0.00
### PAINTING AND DECORATING

All painting works shall be completed with proper manner and accordance the drawings and UNRWA ICIP specifications and particular specification.

Prime and apply two coats of quality Emulsion Paint, colors and surfaces to be decided during construction.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate</th>
<th>Total (U.S $ )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To plastered walls and columns internally</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Generally; the unit rate shall include a velvet effect paint for the walls, colors should be according to DOW instructions and the contractual color scheme design.</td>
<td>300</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>External Acrylic paint</strong>&lt;br&gt;For finish color refer to notes at architectural drawings or DOW instructions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>To rendered walls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Acrylic paint with marble chipping; the glue bond (original material for external use of approved data sheet according to EU standards) should be at least 12-15% of total volume of materials, the rate should be include preparing and priming the surface according to manufacture instructions and to the full approval and satisfaction of DOW. Colors and decoration included in the rate and will be chosen by the DOW.</td>
<td>85</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>For existing GF conference hall rendered and facades walls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Acrylic paint with marble chipping; the glue bond (original material for external use of approved data sheet according to EU standards) should be at least 12-15% of total volume of materials, the rate should be include hacking off the existing ground floor external finishing, any surface repair using proper epoxy materials, preparing and priming the surface according to manufacture instructions and to the full approval and satisfaction of DOW. Colors and decoration included in the rate and will be chosen by the DOW.</td>
<td>85</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>For existing rendered and facades walls in selected area according to DOWs instructions and BS EN 1504 specifications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Renovation works for exterior facades of Block E adjacent buildings to peel off the existing plastering and any un-sound concrete, removing all rusted reinforcement steel bar layers, clean sound concrete with fresh water, paint by epoxy resin all existing sound concrete surfaces, additional steel dwells or sheer connectors, cast fair face mix C30/35 class concrete, plastering and painting to match existing.</td>
<td>200</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Renovation works for exterior facades of Block A adjacent buildings to peel off the existing deteriorated plastering areas, apply plastering and painting to match existing.</td>
<td>200</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 46 Total: 0.00
<table>
<thead>
<tr>
<th>Ref.</th>
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<th>Unit</th>
<th>Rate US $</th>
<th>Total US$</th>
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<tr>
<td></td>
<td>ELECTRICAL INSTALLATION</td>
<td></td>
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<tr>
<td></td>
<td>Electrical works and product should be a high quality from recognized brand and should be done according to UNRWA drawings and specifications and engineer instructions; while the rate should be include Electrical wiring, telephone wiring, data wiring and junction boxes; lighting fixtures shall include also all type of lamps, all accessories required, Where cost of testing and commissioning and connecting the cables to switchboards and common electric network are included in the cost price of the followings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribution boards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribution board (DB-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Supply, install, mount, connect, test, put in operable manner and commission DB1, included with connection terminals, DIN rails, molded case circuit breakers, transparent PVC barriers, suitable rating bus bars, ventilation, signal indication lamps, cables and wires marking, caution marks, sticker with clear text and suitable size inside and outside panel, wiring diagram printed on sticker with visible size Main circuit breakers shall be 4 poles,16 KA with thermomagnetic protection and selected based on load schedule calculation. Enclosure size must not less than (120X100X30)cm with spare and space area not less than 30% and it must be electrostatic painted with minimum steel thickness 1.5 mm. Digital multimeter (DMM) with required C.T's and all accessories to be European brand and to be convenient with IP network for electrical parameters monitoring. Branch circuit breakers to be selected based on load calculation schedule included with any control circuit required as per design drawings. Rate shall include with any advices of D.O.W or UNRWA electrical engineer.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Supply, install and, connect, test, put in operable manner and commission moulded case circuit breaker 4X63A inside existing MDB / SMDB including wires, DIN rails, connection terminals and all needed accessories. MCCB current capacity might be changed with respect to main feeder size and voltage drop calculation as per design single line diagram(SLD), all works to approved from D.O.W or E.E.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Supply, install and, connect, test, put in operable manner and commission moulded case circuit breaker 3X50A inside existing MDB / SMDB including wires, DIN rails, connection terminals and all needed accessories. MCCB current capacity might be changed with respect to main feeder size and voltage drop calculation as per design single line diagram(SLD), all works to approved from D.O.W or E.E.</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fittings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Supply, install and connect the following lighting switches, the work includes 20mm PVC conduits, 3X2.5mm² wires, and galvanized or plastic back box’s depends on location and rest box’s with all necessary accessories imbedding into walls and all needed finishing works. Rate shall includes with all civil works and approval of D.O.W and UNRWA electrical engineer recommendation.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>One gang switch 10A - 220V decorative type.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Four gang switch 10A - 220V decorative type.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Page 20 Total</td>
<td></td>
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## Construction of Steel Structure Conference Room At UNRWA's HQA

<table>
<thead>
<tr>
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<th>Unit</th>
<th>Rate US $</th>
<th>Total US $</th>
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<tbody>
<tr>
<td>A</td>
<td>Two gang two way switch 10A - 220V decorative type.</td>
<td>2</td>
<td>no</td>
<td></td>
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<tr>
<td>B</td>
<td>Two way switch 10A - 220V decorative type.</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Push button switch 10A - 220V decorative type.</td>
<td>4</td>
<td>no</td>
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<tr>
<td></td>
<td><strong>Waterproof Light switch</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>One gang switch 10A - 220V .</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Socket outlet</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Supply, install, mount, connect and test the following socket outlets, the work includes wires 3X4mm² and 25mm PVC conduit with all accessories, imbedding into walls and all needed finishing works all works in accordance and approval of D.O.W or E.E.</td>
<td>3</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>3-Pin 16A, 220V British standard switched socket outlet decorative type.</td>
<td>13</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>25mm EMT conduit with all accessories and exposed steel back box and 3x4mm² XLPE cable or wires to connect the socket outlets at fuel tank area.</td>
<td>35</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Waterproof Socket outlet</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>3-Pin 13A, 220V British standard switched socket outlet.</td>
<td>3</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Flush floor box (Provisional)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I</td>
<td>Supply, install, mount, connect and test the flush floor box contains power, telephone and data sockets , the work includes wires 3X4mm², Data and telephone cables inside 25mm PVC conduit with all accessories, wires imbedding under floor and all needed finishing works. All works in accordance and approval of D.O.W or E.E.</td>
<td>13</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>3-Pin 13A, 220V British standard switched socket outlet type.</td>
<td>30</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>3-Pin 16A, 220V British standard switched socket outlet type.</td>
<td>15</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Lighting units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Supply, install, mount, connect and test the following lighting fixtures, the work includes wires 3X2.5mm² and 20mm and 25mm PVC conduit along with all accessories, wires, imbedding into walls / above false ceiling, ceiling roses and all needed finishing works and needed accessories, All works in accordance and approval of D.O.W or E.E.</td>
<td></td>
<td></td>
<td>50</td>
<td>mr</td>
</tr>
<tr>
<td>M</td>
<td>Surface mounted lighting fixture with 1X14W LED tube, not less than 2100 lumens and life span 50000 hours, with light color 3000 K, LED T8 tube should be 1200mm long.</td>
<td>5</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Wire protected splash proof IP-44 wall mounted LED light lantern of 7.5W.</td>
<td>1</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>IP-65 surface mounted globe with polycarbonate body and diffusor. 8.5W LED bulb, not less than 806 lumens and life span 25000 hours, with light color 2200-2700 K.</td>
<td>4</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>IP-65 surface mounted lighting fixture with polycarbonate cover, double LED tubes of not more than 14W, not less than 2100 lumens and life span 50000 hours each with light color 6500 K, LED tube should be 1200mm long.</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>Ceiling mounted round panel lighting unit 18 W, 85-265 V input voltage, PF&gt;0.5, 80 Lm/w, DC voltage &lt;50 v, DC current:480 mA, CCT: 6000-6500K, LGP : PC or PMMA, Diffuser : PC, aluminum body, CRI =&gt;75, beam angle &gt; 120 , life time &gt; 25000 HR.</td>
<td>28</td>
<td>no</td>
<td></td>
<td></td>
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<tr>
<td>Ref.</td>
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<td>Qty</td>
<td>Unit</td>
<td>Rate US $</td>
<td>Total US$</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<td>-----------</td>
</tr>
<tr>
<td>A</td>
<td>Recessed mounted down light with aluminum body and polycarbonate optic, 6.5W LED, not less than 650 lumens and life span 50000 hours, with light color 3000 K. Type-Philips or equivalent.</td>
<td>27</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Wall mounted up/down light fixture, made of metal with stainless steel finish, &gt;80 RI, 14.6W LED, not less than 943 lumens and life span 50000 hours, with light color 3000 K.</td>
<td>10</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Wall mounted down light fixture, made of die cast zinc with stainless steel finish, &gt;80 RI, 3.2W LED, not less than 68 lumens and life span 50000 hours, with light color 3000 K.</td>
<td>7</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Recessed mounted emergency light 4W, 180 lumens, IP-20 with LiFePO4 back-up battery.</td>
<td>5</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Air conditioner and elevator isolators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply, install and connect the following socket outlets, the work includes wires 3X4mm² and 25mm PVC conduit, wires/cables, imbedding into walls and all needed finishing works. Roof isolator works to be EMT conduits along with all needed accessories and as per D.O.E recommendations.</td>
<td>6</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Supply, install, mount, connect and test water proof double pole IP 65 out door isolator switch, 30 amp, In accordance and approval of D.O.W or E.E.</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Supply, install, mount, connect and test water proof four poles IP 65 out door isolator switch, 50 amp, In accordance and approval of D.O.W or E.E.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Data system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply and install PVC 25mm conduits and 7X7 back box’s for Data system including pulling wire, all works imbedding into walls and all needed finishing civil works.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>50mm PVC conduits for fiber optic cables.</td>
<td>150</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>PVC box for crossing DATA cables (Junction box)</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>RJ 45 decorative type data socket outlet (CAT 6A standard).</td>
<td>25</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>HDMI port decorative type.</td>
<td>8</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>RJ 11 telephone outlet decorative type.</td>
<td>13</td>
<td>no</td>
<td></td>
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</table>

Page 22 Total
<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
<th>Total US$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Telephone Cable</strong></td>
<td></td>
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</tr>
<tr>
<td>A</td>
<td>Supply and install Cables work including cables' terminals, wires' numbering, 32mm PVC ducts/conduits, and all accessories and connections needed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Black thick armored telephone cable (10 pairs) from nearest telephone junction box to the new telephone box.</td>
<td>140</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Telephone junction boxes 10 pair complete with boxes, connection strips, wiring, labelling, piping, and all needed.</td>
<td>3</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Supply and install PVC conduits and rest box's for Audio and Video system including pulling wire and all accessories, all works imbedding into walls and all needed finishing works.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>25mm PVC conduits.</td>
<td>100</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>32mm PVC conduits.</td>
<td>75</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>50mm PVC conduits.</td>
<td>25</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td><strong>Fire alarm system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Supply and install wiring system for fire alarm system including: fire retardant cables to be routed inside 20mm or 25mm PVC conduits as per D.O.E recommendation and the size of cables shall be 4x0.8mm2 and 3x1.5mm2 for sirens and 2x1.5mm2 for the detectors, junction boxes, connecting all fire alarm items to the existing control panel from the nearest FAP through necessary junction boxes, with all connections needed with individual loops. Works shall includes communication with existing fire alarm panel vendor and do the necessary coordination with other parties for system to be fully operational.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>Optical smoke detector, combustion (smoke) detector. type context plus brand, IP rate 43, supply voltage : 17 to 28 Volts dc, operating temperature -20°C to +60°C. Detector Housing: White polycarbonate V-0 rated to UL 94 Terminals: Stainless Steel with led indicator.</td>
<td>4</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Manual break glass switch labeled in both English and Arabic languages. type context plus brand, operating temperature 0°C to +60°C. Housing: Red self-colored Polycarbonate/ABS, IP rate 67, red Light Emitting Diode (LED).</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>IP-65 surface mounted fire alarm emergency siren, type context plus brand, with flasher including all needed requirements.</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>20 cm X 20 cm X 12 cm fire alarm junction box, complete with cover, connection, marking and all terminal connections needed.</td>
<td>2</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>25mm EMT conduit with all accessories and exposed steel back box and 3x1.5mm2 to connect the detector and siren at fuel tank area.</td>
<td>55</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 23 Total
<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
<th>Total US$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conduits and ducts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply, install, mount and put in operable manner rigid white or black color PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>conduit with holding clamps each 60 cm at most, Provide and cast into concrete or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>built into block work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>38mm rigid PVC conduit.</td>
<td>150</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>50mm rigid PVC conduit.</td>
<td>75</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply and connect the following XLPE Cables, this work including cables’ lugs and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>connections as per instructions of D.O.W.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>XLPE cable 5x16mm²</td>
<td>75</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>XLPE cable 5x10mm²</td>
<td>150</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>XLPE cable 3x4mm²</td>
<td>50</td>
<td>mr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>XLPE cable 3x2.5mm²</td>
<td>50</td>
<td>mr</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Dismantle one CCTV system surveillance camera and reinstall after completing</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>renovation works, the work includes PVC ducts, PVC pipes, proper power and signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cables and all needed accessories to make it working properly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Dismantle TV / Telecommunication satellite and reinstall after completing</td>
<td>1</td>
<td>item</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>renovation works, the work includes cables extension, needed protection,</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>stainless steel bolt anchors and all needed accessories to make it working</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>properly.</td>
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<tr>
<td>I</td>
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Page 24 Total

3/ M/ 24
<table>
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<td><strong>EXTERNAL WORKS</strong> <strong>PATHS, PAVINGS, AND STEPS</strong></td>
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<td></td>
<td><strong>External Works</strong></td>
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<tr>
<td></td>
<td>Precast Cement tiles 400X400X40mm to be laid on top of cement sand mortar 20 mm thick on top of concrete slab min thickness of 100 mm (measured elsewhere). Color and shape is according to Drawings and instructions of DOW’s cement floor tiles</td>
<td></td>
<td></td>
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<tr>
<td>A</td>
<td>Supply and lay 400X400X40 mm precast cement tiles as detailed on drawings. The unit rate shall be deemed inclusive of all and where required mitered and/or straight cutting, unit rate also includes removal of existing tiles and disposal of resulting debris out of site</td>
<td>100</td>
<td>m²</td>
<td></td>
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### MECHANICAL WORKS

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<td>Cassette Type Split Units:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply, install, commission and operate the following Cassette Type A/C Split Units, of approved type and brand name, with all necessary electric cabling (external electric and control cables which should be supplied with the unit itself), copper pipes, connections and thermal insulation in addition to diameter of 1” (25mm) PVC condensate water drain pipes network to be connected to vertical condensate drain pipes outside the building, as indicated on drawings. - INDOOR UNIT: Ceiling mounted, with grill attached to false ceiling. - OUTDOOR UNIT: Ground mounted with approved reliable vibration absorbers as indicated at the manufacturers catalogue. High cooling/heating energy and power saving with the following specifications:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Energy Efficiency Class (both heating &amp; cooling) A++ or above</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Nominal cooling capacity [Kw] 10.55</td>
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<tr>
<td></td>
<td>Nominal heating capacity [Kw] 11.14</td>
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<td></td>
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<tr>
<td></td>
<td>Nominal cooling capacity [Btu/h] 36000</td>
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<tr>
<td></td>
<td>Nominal heating capacity [Btu/h] 38000</td>
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<tr>
<td></td>
<td>Tonnage 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Air Flow Direction 8 sides (360 deg)</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Indoor air flow (Hi/Mi/Lo) [m3/h] 1700/1500/1300</td>
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<td></td>
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<tr>
<td></td>
<td>Max. Indoor noise level (Hi/Mi/Lo) [dB(A)] 50/47/44</td>
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<td></td>
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<tr>
<td></td>
<td>Refrigerant R-410A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operation wireless LCD Remote+ Wall mounted wired LCD control panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Max. IDU Dimension Unit (WxHxD) [mm] 870X360X870</td>
<td></td>
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<tr>
<td></td>
<td>Max. IDU weight Net [Kg] 40kgs</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Min. Grill Dimension Unit (WxHxD)[mm] 950X36X950</td>
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<tr>
<td></td>
<td>Outdoor Coil Fin &amp; Tube</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Condensate Drain Pipe [mm] 25X29</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airflow 360 degree air flow</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Max. ODU Dimensions [mm] 930X720X380</td>
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<tr>
<td></td>
<td>Max. ODU weight Net [Kg] 72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FEATURES:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Fresh air intake</td>
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</tr>
<tr>
<td></td>
<td>Cold Catalyst</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anti-Dust</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Built in Drain Pump (Min. head= 1200mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auto Restart Function</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrophilic Aluminum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turbo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital Display on IDU</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fire proof Electric Box</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>A</strong> Cassette Type A/C Split Units according to the above specifications</td>
<td>2</td>
<td>No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 3/ Y/ 27 | Page 27 Total | - |
### 2- Ducted Split Units:

Supply, install, commission and operate the following "Mini-Central" A/C Ducted Split Units, of approved type and brand name, with all necessary electric cabling, copper pipes, connections and thermal insulation, 8” flexible ducts, supply register and return grills in addition to diameter of 1” (25mm) PVC condensate water drain pipes network to be connected to vertical condensate drain pipes outside the building, as indicated on drawings.

- **INDOOR UNIT**: Ceiling mounted (Extra Silent).
- **OUTDOOR UNIT**: Ground mounted with approved reliable vibration absorbers.

High cooling/heating energy and power saving with the following specifications:

<table>
<thead>
<tr>
<th>Spec</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Cooling/Heating, Inverter, Slim type</td>
<td></td>
</tr>
<tr>
<td>Energy Efficiency Class</td>
<td>(both heating &amp; cooling) A++ or above</td>
</tr>
<tr>
<td>Nominal cooling capacity [Kw]</td>
<td>7.0</td>
</tr>
<tr>
<td>Nominal heating capacity [Kw]</td>
<td>7.9</td>
</tr>
<tr>
<td>Nominal cooling capacity [Btu/h]</td>
<td>24000</td>
</tr>
<tr>
<td>Nominal heating capacity [Btu/h]</td>
<td>27000</td>
</tr>
<tr>
<td>Tonnage</td>
<td>2 Ton</td>
</tr>
<tr>
<td>Indoor air flow (Hi/Mi/Lo) [m³/h]</td>
<td>1300/1100/900</td>
</tr>
<tr>
<td>Max. Indoor noise level (Hi/Mi/Lo) [dB(A)]</td>
<td>42/39/36</td>
</tr>
<tr>
<td>Refrigerant</td>
<td>R-410A</td>
</tr>
<tr>
<td>Operation</td>
<td>wireless LCD Remote+ Wall amounted wired LCD control panel</td>
</tr>
<tr>
<td>Max. IDU Dimension Unit (WxHxD) [mm]</td>
<td>920X320X870</td>
</tr>
<tr>
<td>Max. IDU weight Net [Kg]</td>
<td>28kgs</td>
</tr>
<tr>
<td>Outdoor Coil</td>
<td>Fin &amp; Tube</td>
</tr>
<tr>
<td>Condensate Drain Pipe [mm]</td>
<td>25X29</td>
</tr>
</tbody>
</table>

**FEATURES:**

- Fresh air intake
- Anti-Dust
- Auto Restart Function
- Washable air clean filters
- Turbo
- Digital Display on IDU
- Fire proof Electric Box

<table>
<thead>
<tr>
<th>A</th>
<th>Mini-Central® A/C Ducted Split Units according to the above specifications</th>
<th>2</th>
<th>No.</th>
</tr>
</thead>
</table>

Page 28 Total

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### A. Carefully dismantling and removing existing A/C outdoor split units on the current building’s roof (11 units) before starting the construction works.
- With special care to isolate and protect refrigerant gas and electrical connections. And install them temporarily to keep A/C systems operational during the construction period. Temporary installation location is indicated on drawings. Contractor is to supply the requested GS hangers for all units and to ensure protection from any damages during constructions and making good all walls after dismantling them to permanent locations after construction works.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
<th>Total US $</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Item</td>
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<td></td>
</tr>
</tbody>
</table>

### B. Carefully dismantle and re-install, re-connect and re-operate the outdoor units in their new permanent locations on the new roof, to put back again in service connected to the same indoor units, including additional copper pipes, electric cables 3X4mm² and adding IP65 2 poles and 4 poles isolators along with EMT conduits with all needed accessories, thermal insulation extensions, refrigerant re-charge whenever needed, testing according to each unit’s name plate (data).
- The work also includes general cleaning works for all 11 indoor and outdoor units before putting in-service again, with all other necessary works as indicated on drawings to the satisfaction of UNRWA Engineer.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
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<tr>
<td></td>
<td></td>
<td>1</td>
<td>Item</td>
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</tbody>
</table>

### HVAC & CONDENSATE DRAINAGE PIPE
- Draw up and fix cpvc pipes as condensate drain to the nearest trapped gully including the opening with sleeves as needed with full coordination with the AC contractor and finishing the works around the openings including the paint works as soon as the AC contractor finishes his works.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
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<tbody>
<tr>
<td>C</td>
<td>25mm dia.</td>
<td>20</td>
<td>mr</td>
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</tr>
</tbody>
</table>

### FIREFIGHTING
- Supply, install and connect fire hose reel cabinet (FHC), it should be of approved type and brand name. including 1 hose reel & 1 fire extinguisher as shown on drawings and with the following specifications:
  - Cabinet shall be LPCB Certified, UL listed, FM approved, CE approved or BSI Kite mark.
    - Recessed Double Door/Horizontal Cabinet
    - Material: Stainless Steel (304/316 or 400) "Mirror finish"
    - Min. thickness: 1.2mm
    - Door: solid or glass door
    - Inner space: enough for hose reel + 1 fire extinguisher.
    - Color: Red
    - Dimensions: min. (95x80x25) cm max. (120x95x35) cm
  - Hose Reel:
    - Material: Stainless Steel (304/316 or 400)
    - Diameter: (40-60)cm
    - Hose: swinging 1" x 25m high pressure water hose, working pressure up to 235 Psi ≈ 16 bar
    - Nozzles: 1" Nozzle adjustable with SHUT, JET and SPRAY control settings, nozzle tip min. 6mm
    - Valve: Brass valve, with pressure test 16 bar and red steel hand wheel.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
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<td>D</td>
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<td>1</td>
<td>No.</td>
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</table>

### E. 6kg, CO₂, Manual Cylinder Extinguisher, Wall mounted., with all accessories needed.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
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<th>Unit</th>
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<tbody>
<tr>
<td>E</td>
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<td>6</td>
<td>No.</td>
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</table>

### F. 12kg, CO₂, automatic Cylinder Extinguisher, ceiling mounted, with all accessories needed, to be installed at the new fuel tank room.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
<th>Total US $</th>
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<tbody>
<tr>
<td>F</td>
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<td>2</td>
<td>No.</td>
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</tbody>
</table>

### Re-location of existing fire pipe line:
- Carefully isolating, dismantling and removing existing firefighting pipe line on the current building’s roof before starting the construction works. The work includes to supply temporary the existing FF system with external piping, ducts, connections and needed conduits to keep it operational.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
<th>Total US $</th>
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<tr>
<td>G</td>
<td></td>
<td>1</td>
<td>Item</td>
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</tbody>
</table>

### Re-Location of boiler set:
- Changing the temporary FF pipe rout on the new roof as indicated on drawings, with all necessary additional pipe extensions with the same material & size, fittings, ceiling hangers and other accessories to feed the fire hose cabinet in the new floor and continue to be re-connected to the existing pipe line in ground floor.
- All works should be executed in external ducting and insuring good operational conditions to the satisfaction of UNRWA Engineer.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate US $</th>
<th>Total US $</th>
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<tr>
<td>E</td>
<td></td>
<td>1</td>
<td>Item</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Relocate / shift existing water boiler with dimensions [70*60*80cm (L,W,H)] inside boiler room by moving it 80 cm closer to the other two smaller boilers, on the same foundation (with any extensions needed), to clear space for the new door opening. The rate includes but limited to Re-fabrication, modification and installation of Ø8” chimney with the same type and thickness of existing insulation materials, Re-fabrication, modification and installation of galvanized steel water pipes up to 2.5” with the same type and thickness of existing insulation materials, Replacing any unserviceable valves and accessories with other new parts from the same material, make and size, Fuel line, fire extinguisher, electrical connections, control, civil works and any other related works to put the boiler back in service again in its original working conditions. Rate to include any related works for boiler isolation and to keep the remaining boilers inside room operating normally without affecting the heating system. All works shall be carried out by certified skilled technicians under direct supervision of UNRWA senior mechanical engineer. All new connections and welded joints shall be tested according to standard procedure and to the approval of UNRWA senior mechanical engineer. After finalizing the works and preliminary handing over, the whole system shall be tested, operated and kept under observation for 45 working days, after that, final handing over takes place by issuing the final handing over document to the satisfaction of Jordanian Civil Defence and UNRWA supervisor.

<table>
<thead>
<tr>
<th>Item</th>
<th>Page 29</th>
<th>Total</th>
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</thead>
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**COLLECTION MECHANICAL WORKS**

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### BILL NO. 3 SUMMARY

#### MAIN BUILDING

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<td>DEMOLITION AND ALTERATIONS</td>
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</tr>
<tr>
<td>EXCAVATION AND EARTHWORKS</td>
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CONSTRUCTION OF PANORAMIC ELEVATORS
At UNRWA's HQ Amman
**Construction of PANORAMIC ELEVATORS**

**EXCAVATION AND EARTHWORKS**

All works disturbed due to the Contractor’s activities on site shall be made good at his own expense. The contractor shall visit the site and make all investigations deemed necessary to ascertain the nature of the existing conditions, and satisfy himself as to the form and nature of work to be carried out, and the existing conditions.

1. The Contractor shall be held responsible for any damage caused by him, his work people, subcontractors or suppliers to public or private roads, paved areas, paths, verges, trees, shrubs, fences, boundary walls, gates, signs, drains, ducts, equipment and services during the execution of the Contract and shall bear the cost of making good any damage to the entire satisfaction of the local and other authorities and owners. The Contractor shall keep all private roads and paths clean and free from dirt and debris and any obstruction associated with the works, which would prejudice the safe and unimpeded normal use of the said roads and paths.

The Cost of the above-mentioned requirements shall be deemed included in the unit rates of excavation work items.

**Excavate from reduced level or natural ground level whichever is lower**

- **A** For raft foundation
  - Qty: 5

- **B** Surplus excavated material
  - Qty: 5

**Filling**

- **C** Imported granular fill (Base Course)
  - In beds 200 mm thick under foundation, well rammed, consolidated, and finished to receive concrete
  - Qty: 5

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<tr>
<td>B</td>
<td>Surplus excavated material</td>
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<tr>
<td>C</td>
<td>Imported granular fill (Base Course)</td>
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**Total**

4 / B / 1
Construction of PANORAMIC ELEVATORS

Ref | Description | Qty | Unit | Rate | Total (U.S $ )
--- | --- | --- | --- | --- | ---

All concrete works to be according to specifications and standards, no works to be started before submission of method of statement of works and a comprehensive contractor’s safety plan at site. All works are to be approved and according to DOW’s instructions.

**CONCRETEWORK**

**INSITU CONCRETE**

Plain concrete 200/20

A Generally

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Reinforced concrete 300/20, (fair face job mix)

**Foundations**

Generally, Work includes all anchorage bolts, plates to be suitable to erect the staircase steel structure columns as shown at the drawings and according to the DOW's instructions. Work also includes waterproofing and insulation works before backfilling.

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Total

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Page 6

Total
## Construction of PANORAMIC ELEVATORS

At UNRWA’s HQ Amman

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<td><strong>Block walls and Sundries</strong></td>
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<td></td>
<td>Concrete blocks type A compressive strength 35 kg/cm². The rate shall be deemed to include Reinforced Concrete 200/20 Dummy Columns and lintels; the dummy columns should be used for all windows jambs as well as for timber and metal door jambs. The size and reinforcement of the lintels shall be taken from structural drawings. All joints between any concrete and hollow block walling should be filled with approved filler and finished with approved mastic. The rate shall be deemed to include 200/20 Plain Concrete Topping to Walls. The size of the topping shall be taken from Architectural Drawings</td>
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<tr>
<td></td>
<td><strong>Hollow block walling</strong></td>
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<tr>
<td>A</td>
<td>20cm thick</td>
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<p>|     | 4 / D / 1                                                               |     |      |      |               |</p>
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<td></td>
<td>The Contractor shall provide all requisite Plant, Labor and Materials for the Full and Proper execution of the Works</td>
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<tr>
<td></td>
<td><strong>Aluminum</strong></td>
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<td></td>
<td>Window (The given dimensions represent the Structural openings (S.0.). The exact size of the Window must be checked and verified on site prior to fabricating any unit). Fabricate, Supply and Install in position Double glazed aluminum window complete with sub frame, frame, 6 mm thick clear glass for inner panels and 6mm thick reflecting glass outer panel and 6mm thick air space filled with argon gas, and butyl framing rubber, perforated inner separation aluminum frame and polysulphide mastic between aluminum frame and glass including double cavity bottom track, top hung aluminum woven mesh fly screen, automatic locks and all necessary frames, sub-frames, fixing, fittings, accessories Neoprene weather stripping and hardware. all as shown on drawings.</td>
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<tr>
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<td><strong>Curtain wall</strong></td>
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<td>Aluminum curtain walls system, the works including submitted shop drawings and calculation to be approved, complete with all Awning windows in the elevations, min. 12 extra opening the rate should be deemed to include fixing of all plates and expansion joint each 6 m including all needed material, and all necessary fitting and materials to put the system in operation and protection from water, silicone sealant, ironmongery, and hardware; all in the line of UNRWA tender drawings. The used glass is double glassed each of 6mm thick with 6mm air gap, blue colored and tempered type &quot;scoured&quot;. The price include sound insulation between floors using Rockwall &amp; steel sheets as per drawings.</td>
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<td></td>
<td>130</td>
<td>130 m²</td>
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Total
## Construction of PANORAMIC ELEVATORS

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<td>15</td>
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### ROOFING

**All roofing materials shall be best quality and shall be completed with proper manner and accordance the drawings and UNRWA ICIP specifications and particular specification**

**Sundries**

**Fireclay roofing tiles**

- It should be measured superficially to the projection of area

**Fireclay roofing tiles to cover Panoramic elevators.**

The rate shall be deemed to include but not limit the following:
- Clay roof tiles 21x42cm "Tongan type"
- Half round tiles where needed
- timber battens
- timber rafters
- Galvanized steel channel gutter
- 3" galvanized steel pipe for rain water
- Foals ceiling "Net aider" for external and internal.
- Contractor shall submit shop drawings
- All materials and accessories need to complete the work according drawings and full approval and satisfaction of Director of works

**Page 129**

**Total**

| 4       | K       | 129     |
### ELECTRO MECHANICAL WORKS

**ELEVATORS**

- **LIFTS ORIGIN**: ONE PACKAGE OF ONE SOURCE
- **QTY. OF LIFTS**: (2) LIFTS / SIMPLEX SYSTEM
- **CAPACITY**: 800 KG (10 / PERSONS)
- **SPEED**: Around 0.40 M/S (VVVF)
- **NO. OF FLOORS**: (3) FLOORS AT ONE SIDE.
- **FLOORS DESIGNATION**: (G, 1, 2).
- **SHAFT SIZE**: 2000 mm (W) X 2000 mm (D).
- **SHAFT CONSTRUCTION**: CONCRETE CONSTRUCTION.
- **HEAD ROOM**: 4000 mm
- **MACHINE ROOM LOCATION**: WITHOUT MACHINE ROOM (MRL)
- **POWER SUPPLY**: AC 3- PHASE, 400 VOLTS, 50 HZ

### STANDARD SPECIFICATIONS:
- THE LIFT MUST BE ACCORDING TO INTERNATIONAL SPECS., AND TO COMPLY AT LEAST WITH THE FOLLOWING NORMS:
  - JORDANIAN MEASUREMENTS STANDARD

### CONTROL SYSTEM:
- THE CONTROL SYSTEM SHOULD BE BASED ON MICROCOMPUTERS AND SERIAL TRANSMISSION TECHNOLOGY, THROUGH AN INTELLIGENT COMMUNICATION NETWORK.
- THE CONTROL MUST HAVE THE FOLLOWING FEATURES:
  - NOISE FILTER
  - INSPECTION DRIVE
  - DIGITAL DISPLAY FOR LIFT EFFECTS
  - CURRENT TRANSFORMER ON EACH MAIN PHASE FOR (V.V.V.F.) CONTROL
- CONTROL SHALL HAVE THE FOLLOWING PROTECTIONS:
  - OVER CURRENT IN ANY COMPONENT
  - PHASE FAILURE & REVERSAL OF POWER SUPPLY
  - OVER LOAD AGAINST VOLTAGE
  - NO VOLT AND SUSTAINED UNDER VOLTAGE

LIFT MOVEMENT WILL BE CONTROLLED BY A VARIABLE VOLTAGE VARIABLE FREQUENCY SYSTEM (V.V.V.F.), THROUGH FEED BACK CLOSE LOOP SYSTEM.

THE CONTROL SHALL INCLUDE THE FOLLOWING FEATURES:
Construction of PANORAMIC ELEVATORS
At UNRWA’s HQ Amman

- ADJUSTABLE TIMER SYSTEM FOR SHUT LIGHTING AND FAN SHUT OFF.
- EMERGENCY EVACUATION SYSTEM WITH BATTERY (ARD).
- AUTOMATIC FIRE RETURN SYSTEM TO EVACUATE PASSENGERS IN THE MAIN FLOOR.

MODE OF OPERATION:
SIMPLEX FULL COLLECTIVE SELECTIVE SYSTEM.

DRIVE SYSTEM:
THE DRIVE SYSTEM SHALL BE THREE PHASE PERMANENT MAGNET DOUBLE COIL BRAKE GEARLESS DRIVE SYSTEM.
MOTOR OUTPUT POWER TO BE ACCORDING TO MANUFACTURER STANDARD WITH THE FOLLOWING SPECIFICATIONS.
- PROTECTION CLASS (IP21)
- INSULATION CLASS (F)
DRIVE & CONTROL SYSTEM WITH (VVVF) MUST BE OF ONE SOURCE (OPERATION IN HARMONY)

CABIN: PANORAMIC CABINS
ELEVATOR 1 : TWO SIDES PARTIALLY GLASS, OTHER PARTS OF CABIN WALLS TO BE MADE FROM ANTI MAGNET STAINLESS STEEL.
ELEVATOR 2 : THREE SIDES PARTIALLY GLASS, OTHER PARTS OF CABIN WALLS TO BE MADE FROM ANTI MAGNET STAINLESS STEEL.
CABIN DIMENSIONS WILL BE ACCORDING TO MANUFACTURER STANDARD FOR REQUIRED CAPACITY AND SHAFT DIMENSIONS.
CABIN MUST CONTAIN THE FOLLOWING FEATURES AND FINISHES:
-Granite cabin floor according to customer choice
-(3) stainless steel handrail at a height of (80) cm from the cabin floor.
- FALSE CEILING TO BE CHOSEN FROM COMPANY CATALOGUES.
-RECHARGABLE EMERGENCY LIGHT.
-INTERCOM (3-WAY SYSTEM).
-BLOWER SILENT FAN.
-ACUSTIC AND LUMINOUS OVER LOAD SYSTEM.
-FULL LOAD SYSTEM.
-ARRIVAL GONG.
-CONNECTION BOX AT TOP OF THE CAR TO INCLUDE:
  - MAINTAIN NORMAL – REVISION SWITCH
  - UP BUTTON
  - DOWN BUTTON
  - STOP BUTTON
  - OUTLET SOCKET AND LAMP

-CAR OPERATING PANEL:
The length of C.O.P to be at least (100) cm fixed at a height of (40) cm from the cabin floor.
THE C.O.P TO BE CHOSEN FROM COMPANY CATALOGUES, ALL USED BUTTONS MUST BE HEAVY DUTY, AND PROVIDED WITH BRAILLE SYSTEM.
CAR OPERATING PANEL MUST INCLUDE:
Construction of PANORAMIC ELEVATORS
At UNRWA's HQ Amman

- FLOOR BUTTONS
- DOOR OPEN BUTTON
- DOOR CLOSE BUTTON
- INDICATOR WITH DIRECTION ARROWS
- FAN BUTTON / SWITCH
- ALARM BUTTON
- INTERCOM BUTTON
- OVER LOAD INDICATOR
- INSTRUCTION PLATE

CABIN DOORS:
AUTOMATIC TWO PANELS CENTRAL OPENING SLIDING DOOR, CONSTRUCTED FROM ANTI-MAGNET ETCHING MIRROR ST.ST.
CLEAR DOOR SIZE: 800 mm (W) X 2100 mm (H)
CABIN DOORS TO INCLUDE FULL HEIGHT PHOTOCCELL.
CABIN DOORS MUST INCLUDE MECHANICAL INTERLOCK.
CABIN DOORS OPERATOR MUST BE HEAVY DUTY AND ADJUSTABLE SPEED FOR OPENING AND CLOSING VIA V.V.V.F. CONTROL.

LANDING DOORS:
AUTOMATIC TWO PANELS CENTRAL OPENING SLIDING DOOR, CONSTRUCTED FROM ANTI-MAGNET ETCHING MIRROR ST.ST.
CLEAR DOOR WIDTH = 800 mm
CLEAR DOOR HEIGHT = 2100 mm
LANDING DOORS TO BE FIRE RATED AT LEAST (60) MINS

LANDING PUSH BUTTONS:
ALL LANDING BUTTONS TO BE CHOSEN FROM COMPANY CATALOGUES AND PROVIDED WITH BRAILLE SYSTEM
ONE LANDING STATION TO BE FIXED ON EACH FLOOR.
TWO BUTTONS ON EACH STATION TO BE FIXED AT INTERMEDIATE FLOOR, AND ONE BUTTON AT TERMINAL FLOORS.
Landing station on (G) floor to contain fire key switch.
Landing buttons must be operated by access cards at all floors.
required (50) pcs of access cards.

INDICATORS AND ARROWS:
INDICATORS WITH DIRECTION ARROWS AT ALL FLOORS TO BE CHOSEN FROM COMPANY CATALOGUES.

COUNTER WEIGHT:
FRAME TO BE MADE OF STEEL PROFILES WITH CAST IRON FILLERS TO BALANCE WEIGHT OF THE CAR WITH 45-50% OF RATED CAPACITY
The counter weight for THESE lifts must provide with safety gear system with all necessary components

OVER SPEED GOVERNOR:
TO BE INSTALLED IN THE MACHINE ROOM, OVER SPEED GOVERNOR MUST WORK AT LIFT NOMINOL SPEED, AND ADJUSTED AT THE TRIPPING SPEED IN ACCORDANCE TO ACCEPTED CODES.

SUSPENSION ROPES:

1/A/9
SPACIAL STEEL ROPES FOR LIFTS WITH A STRENGTH OF NOT MORE THAN 160 KG/MM² HAVING A SEAL STRUCTURE 19X8 WITH A SUITABLE NUMBER AND DIAMETER. THE ROPES ENDS SHALL HAVE ZINC BELLs OR ROPE CLAMPS. SAFETY FACTOR TO BE NOT LESS THAN (12).

**GUIDE RAILS:**
GUIDE RAILS FOR CAR AND COUNTERWEIGHT SHALL BE MADE OF DROWN HEIGH QUALITY T-SECTION STEEL, THICKNESS OF CROSS SECTION TO BE ACCORDING TO COMPANY STANDARD, BUCKLING CALCULATIONS TO BE SUBMITTED UPON ENGINEER REQUEST.

**GUIDE SHOES:**
SPECIAL SLIDING HEAVY DUTY GUIDE SHOES FOR CAR AND COUNTERWEIGHT

**BUFFERS:**
SPRING OR RUBBER BUFFERS TO BE FIXED UNDER CAR AND COUNTERWEIGHT IN THE SHAFT PIT.

**TRAVELLING CABLES:**
SPECIAL FLAT TYPE CABLES, WITHOUT ANY CONNECTIONS IN THE LIFT SHAFT, ALL TRAVELLING CABLES MUST BE FLEXIBLE AND SUITABLY SUPPORTED AND PROTECTED, ALL CABLES ARE TO BE FLAT RETARDING TYPE AND SHALL COMPLY WITH THE RELEVANT STANDARDS.

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Total: 0.00

4 / M / 1
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FORM OF PERFORMANCE BOND

[On the headed note paper of the Guarantor (Bank/Insurance Company)]

From:
[Name of the Bank/] ………………………………………………………………………………][1
[Branch or Office] ………………………………………………………………………
[Address] ………………………………………………………………………
Fax No: [……………………………]

(the “Guarantor” ……………………………………………………)

To:

United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)
UNRWA Headquarters (Amman)- building # 136
P.O.Box 140157
11814 Bayader Wadi Al-Seer
Jordan
Tel No: [06/ 5808401- 458]
(the “Beneficiary” or “you”)

Date:………………………………….

Dear Sir/Madam

Re: Performance Bond in respect of [………………………………………………….]’s performance obligation under the Contract [Ref no. ………………………………………………………..] (the “Performance Bond”)
[Performance Bond No. [ ]]

1. We, have been informed that [supplier…………………………………………………………..] (the “Principal”) has entered into a contract [full name of the contract ……………………………………………………………………………………] dated ……………………., with you, the Beneficiary, for the supply of [insert brief description of goods and services…………………………………………………………………………………] (the “Contract”).

2. Further, we understand that, according to the conditions of the Contract, an on-demand performance bond is required as a security for the performance of the Principal’s obligations under the Contract.

3. At the request of the Principal and in consideration of you entering into the Contract with the Principal, we [bank name ……………………………………………………………………………..] hereby guarantee to you that we shall, without proof and notwithstanding any contest or dispute by the Principal, pay you in full, without any deductions, set-off or withholdings, any sum or sums not exceeding in total an amount of JOD [insert the amount in figures…………………………………………………………….] (insert the amount in words……………………………………………………………………………….) Jordanian Dinar (the “Bond Amount”) claimed by you, upon, and in any event within 3 (three) days after, receipt by us of your first written demand stating:

1 To be issued by a bank or an insurance company satisfactory to UNRWA.
(a) that the Principal is in breach of his obligation(s) under the Contract; and

(b) the respect of which the Principal is in breach,

to the account specified in the said demand.

4. You may make any number of demands, but any case not later than expiry date, from time to time, under this Performance Bond. The maximum aggregate liability hereunder shall not exceed the Bond Amount.

5. Our obligations constituted by this Performance Bond is irrevocable and, except as stated herein, unconditional and shall not be reduced, discharged or released for any reason, act, event or omission.

6. This Performance Bond shall expire, the latest, on [[insert date] (the “Expiry Date”).

7. Any demand for payment must be received by us at this office on or before the Expiry Date.

8. We represent and warrant that we have the full power, authority and capacity to execute and deliver this Performance Bond and to perform our obligations hereunder.

9. Any demand, notice or communication made to us under or in connection with this Performance Bond shall be in writing and made to the address written above to the attention of: (a) [insert attention/contact details……………………………………………….].

10. This Performance Bond shall be regulated by the Uniform Rules for Demand Guarantees, International Chamber of Commerce (“ICC”) Publication No. 758.

11. We acknowledge that nothing hereunder or any document entered into in relation hereto shall imply a waiver, express or implied, by UNRWA of any privileges or immunity enjoyed by you, or acceptance of the jurisdiction of the courts of any country over disputes arising thereof.

Yours faithfully,

Signed by:…………………..

Name:……………………….

Title:…………………………

For and on behalf of [Name of the Bank]
ANNEX I: DRAFT CONTRACT WITH CQP.
Standard Building Contract

With Contractor Quality Plan

TENDER DOCUMENTS

FOR

insert project title (name)Construction/Maintenance of …etc.
United Nations Relief and Works Agency
For Palestine Refugees in the Near East

Insert project title (name) Construction/Maintenance of ....etc.

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TERMS AND CONDITIONS OF INVITATION TO TENDER

(Building Contract with Security Deposit 1968)

DATE:  insert date

1. Tenderers are invited for the construction of:
   insert project title (name), e.g. Construction/ Maintenance of ……….etc.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.

2. Tenders shall be submitted on or before 11:00 a.m.
   On:  insert date
   At:  insert location of tender box (place)

   in a sealed envelope plainly marked:
   project title (name), e.g. Construction /Maintenance of ……….etc.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.

3. The following documents are attached hereto:
   a) Tender Form.
   b) Building Contract with General and Special Conditions.
   c) Particular Conditions of Contract.
   d) General Instructions and Notes on Pricing and Measurement.
   e) Particular Specifications.
   f) Preliminaries.
   g) Quality Control Tests.
   h) Bills of Quantities.
   i) Drawings as listed in Appendix “A” to the Bills of Quantities.
   j) Specifications for Building Works “issued by UNRWA” (Blue Book).

4. The Tenderer shall return all documents duly completed and signed within his tender.
5. Each tender shall be accompanied by the following:

   a) An irrevocable and unconditional bank guarantee valid/cash deposit to be held* for sixty (60) days from the date of the last day of submission of tenders and made payable to UNRWA for five per centum (5%) of the total amount of the tender as security deposit. The bank guarantee/cash deposit* will be returned to the unsuccessful tenderers within sixty (60) days of the last day of submission of tenders.

   b) A certified true copy of the Article of Association of the Company, Partnership or Firm, a certified copy of the Memorandum of Association, if any, a copy of the official gazette or gazettes showing the registration of the company, if any, or in the case of a sole owner, a signed statement indicating the name or names of the person or persons authorized to sign for him.

   c) Information regarding the name or description of other work previously performed; value; date; architect or engineer responsible.

   d) A cost analysis for each item of work contained in the Bills of Quantities, upon request.

   NB: The Tender may be rejected by the Agency if any one of the above listed documents is not submitted with the Tender.

6. Tenders which are defective by reason of omissions, erasures, alterations or additions may be rejected as defective. The Agency reserves to itself the right, however, to waive any such defect in Tenders received. It also reserves to itself, the right to reject any and all Tenders, including that of the lowest tenderer, for any reason whatsoever without disclosing the reason therefor.

7. Tenders will only be considered where unit rates are quoted in respect of every item required by the Tender documents; these unit rates shall be the sole basis on which Tenders will be considered.

* Delete whichever is inapplicable
8. The successful tenderer will be so informed by the Agency, in writing, within a period of sixty (60) days of the last day for submission of Tenders. The successful tenderer will then be required to sign the Contract and present the following documents:

a) A new bank guarantee/cash deposit* in the amount of ten per centum (10%) of the total value of the Contract, such bank guarantee/cash deposit* to be provided within five days from the date of receipt of the notification of the acceptance of the tender. The guarantee must be valid from the date of the signature of Contract until the provisional acceptance of the work and forty (40) days thereafter. It shall be retained by the Agency as a security deposit subject to the relevant articles of the Contract. The five per centum (5%) temporary security deposit shall be returned to the tenderer upon receipt by the Agency of the aforesaid guarantee.

b) A proposed Program of work, upon request.

9. In the event, the successful tenderer fails or refuses to sign the Contract when requested by the Agency, and/or fails or refuses to present the ten per centum (10%) bank guarantee/cash deposit* the five per centum (5%) security deposit referred to, in paragraph 5 (a) shall be forfeited.

* Delete whichever is inapplicable
TO: The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)

1. I/WE the undersigned have read and understood the Terms and Conditions of Invitation to Tender and the documents and drawings mentioned therein issued by your insert Chief Field Infrastructure and Camp Improvement Programme/Field Engineering and Construction Services Officer* concerning the construction of:

   insert Project name (title) e.g. Construction/ Maintenance of….etc.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.

   Hereinafter called the Works at:

   insert Site location, e.g. Jabal Amman 25th St.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.
   Click here to enter text.

2. I/WE return herewith the Contract documents (duly completed and signed) enclosed with the Terms and Conditions of Invitation to Tender.

3. I/WE bind ourselves to carry out the subject Works in strict accordance with the following documents:

   a) Building Contract with General and Special Conditions.
   b) Particular Conditions of Contract.
   c) General Instructions and Notes on Pricing and Measurement.
   d) Particular Specifications.
   e) Preliminaries.
   f) Quality Control Tests.
   g) Bills of Quantities.
   h) Specifications for Building Works “issued by UNRWA” (Blue Book).
(B) TENDER FORM (Cont’d)

(Building Contract with Security Deposit, 1968)

i) Drawings as listed in Appendix “A” to the Bills of Quantities For the total sum of (insert Contract amount) on the basis of the quantities indicated in the Bills of Quantities and Summary, and to complete the said Works within insert period of Contract in weeks Weeks, commencing from the date the Site is handed over to me/us by the Agency.

This tender remains open to acceptance for a period of sixty (60) days from 12:00 noon of the last day for submission of tenders.

5. I/WE enclose herewith an irrevocable and unconditional bank guarantee/ cash deposit for the amount of five per centum (5%) of the total value of the tender, valid / to be held* for sixty (60) days from 12:00 noon of the last day for submission of tenders.

6. I/WE recognize that tenders will only be considered where unit rates are quoted in respect of every item required in the tender documents and that these unit rates will be the sole basis on which tenders will be considered.

7. I/WE enclose herewith:
   a) A certified copy of the Articles of Association of our Company, partnership or firm,
   b) A certified copy of its Memorandum of Association, if any,
   c) A copy of the official Gazette or Gazettes showing registration of the company, if any,
   d) Or in the case of a sole owner, a signed statement indicating the name or names of the person or persons authorized to sign for him.

8. I/WE enclose a list of works previously carried out by me/us, together with their value, date of construction and name of architect or engineer responsible.

9. I/WE bind ourselves to supply the Agency with the cost analysis for each item of work contained in the Bills of Quantities, upon request.

10. I/WE recognize that the tender may be rejected by the Agency without disclosing the reason therefor.

* Delete whichever is inapplicable
11. I/WE bind ourselves to supply the Agency within five (5) days from the date of receipt of notification of acceptance of my/our tender with an irrevocable and unconditional bank guarantee valid / cash deposit to be held* until forty (40) days after the date of provisional acceptance of the Works, as notified to me / us in writing, in the amount of ten per centum (10%) of the total value of the Contract, to be retained by the Agency as a security deposit in accordance with the General Conditions contained in the Contract, and upon request, the proposed Program of work.

12. If I/WE are the successful tenderer and fail or refuse to sign the Contract when requested by the Agency and/or fail or refuse to present the ten per centum (10%) security deposit, I/WE agree that the enclosed five per centum (5%) bank guarantee / cash deposit* shall be forfeited to the Agency.

Signature of Tenderer

Name of Tenderer

Address

Date

Signature of Witness

Name of Witness

Address

Date

* Delete whichever is inapplicable
This Contract made this insert date, e.g. eighth, second, thirteenth’ etc. day of insert month and year e.g November, 2015 by and between the United Nations Relief and Works Agency for Palestine Refugees in the Near East, hereinafter called the Agency, and insert Contractor’s name as shown in the company’s commercial registration hereinafter called the Contractor. Whereas the Agency is desirous of insert project title (name), e.g. Construction/ Maintenance of ………., etc. hereinafter called the Works at: insert Site location, e.g. ANC, Zarka, Omar Ibn Alkhattab St., … etc. and has caused Specifications and Bills of Quantities and Drawings numbered as shown in Appendix A-List of Drawings to be prepared showing and describing the work to be done; and Whereas the Contractor undertakes to do and construct the Works in accordance with the Contract Documents, as hereinafter defined at the rates shown in the Bills of Quantities including any adjustments made in the Summary. Now Therefore It Is Hereby agreed as Follows: - The Contractor shall complete the Works, including but not limited to state nature of intended works, e.g. construction of preparatory school at Jabal Altaj including external works and utilities as shown on drawings and in accordance with the conditions of the Contract
UNITED NATIONS RELIEF AND WORKS AGENCY
FOR PALESTINE REFUGEES IN THE NEAR EAST

(I) General Conditions

Article 1. Documents and Supervision

a) A copy of each of the said Particular Conditions and Specifications and Bills of Quantities and Drawings signed by both the said parties are attached hereto and form an integral part of this Contract; these together with this Contract shall constitute the Contract Documents.

b) The Contractor shall adhere to the Contract Documents and to such further drawings, details and specifications as may be issued by the Director of Works (who shall be the Agency’s Chief Field Infrastructure and Camp Improvement Programme / Field Engineering and Construction Services Officer* or his representative) under whose supervision and inspection the Works shall be executed.

c) The Contractor assumes full responsibility for knowing and understanding the Contract Documents and for making all necessary enquiries regarding the Works and the Site thereof.

d) The Contractor shall at all times keep one set of the Contract Documents on the Site, in good order, and available to the Director of Works.

e) The Contractor or his duly authorized representative shall be at the Site during normal working hours and shall receive the instruction of the Director of Works.

f) The Director of Works shall at all times have access to the Works and/or the workshops or other places of the Contractor or sub-contractors where work is being prepared for the Contract.

g) Wherever the Special Conditions or Particular Conditions and Specifications are inconsistent with the General Conditions the first-named shall prevail.

Article 2. Security Deposit

a) At or before the signing of this Contract the Contractor shall provide and constantly maintain a valid Bank Guarantee in the form established by the Agency / a cash deposit in a sum* amounting to ten per centum (10%) of the total amount of the Contract, which shall be retained by the Agency as security for the faithful performance of this Contract until provisional acceptance of the Works and for forty (40) days thereafter subject, however, to the provisions of paragraph (c) below.

* Delete whichever is inapplicable
(I) General Conditions (Cont’d)

Article 2. Security Deposit (Cont’d)

b) Should the Contractor breach any of the terms and conditions of the Contract by his acts or omissions, the Agency shall request him to remedy the breach. Should the Contractor fail to remedy the breach the Agency shall serve notice on him, as provided for in Article 19, requiring him to remedy the breach within such period of time, as it shall fix. In the event the Contractor fails or refuses to remedy the breach within the time fixed, the Agency shall have the right to appropriate the said Security Deposit or any portion thereof, and/or withhold any sums due to the Contractor without prejudice to any other rights which it may have in law or equity to cover any loss or damage which it may have incurred or sustained as a consequence thereof.

c) If no part of the Security Deposit has been appropriated, the Agency shall return it to the Contractor within the forty (40) day period stipulated above, providing that in lieu thereof a new Security Deposit in the sum of five per centum (5%) of the amount of the Contract is provided by the Contractor and given to the Agency as security for any defect which may be found in the Works during the period from provisional acceptance to final acceptance as outlined in Article 4 herein.

Article 3. Commencement and Completion of Work

a) The Agency shall give the Contractor at least seven (7) days notice, in writing, of the date the Site will be handed over. The Contractor shall commence work within five (5) days of the date of handing over of the Site and shall carry it out with all due diligence and without delay.

b) The Agency shall hand over the Site to the Contractor within ninety (90) days of the date of this Contract unless otherwise agreed by the parties in writing. Should the Agency fail to hand over the Site to the Contractor within the period specified or within the period agree in writing, the Contractor may serve notice on the Agency, as provided for in Article 19, cancelling the Contract. Immediately upon receipt of such notice the Agency shall return the Security Deposit to the Contractor.

c) The Works to be performed under this Contract shall be completed within (insert period of Contract in weeks) Weeks from the date of handing over as stated in the written notice provided for in paragraph (a) above or by such later date, due to extensions for delays requested in writing, as shall be granted in writing by the Director of Works. No claim for extension of time will be considered if submitted more than seven (7) days after the alleged delay.
Article 4. Provisional and Final Acceptance of Works

a) When the Contractor has carried out and completed the Works to the satisfaction of the Director of Works it shall be provisionally accepted in writing. At that time or as early as possible thereafter the Contractor shall present the final account for payment attaching thereto a signed release, in the form established by the Agency, certifying that he has no further or other claims against the Agency in respect of the Contract; the Agency shall then, subject to other relevant Articles herein and particularly Article 2, make payment of the final account.

b) The Agency shall have the right to take over and use any portion of the Works before the provisional acceptance of the Works and such entry on the Works or use or occupation of a portion or portions thereof shall not be deemed provisional acceptance of any of the Works.

c) Final acceptance shall be made fifty-two (52) weeks after the provisional acceptance of the Works, provided that during this period the Contractor, after written notice thereof from the Director of Works, has repaired and made good at his expense all defects, shrinkage and/or other faults arising from his workmanship or from the quality of materials which he has supplied.

d) If, after due notice from the Director of Works, the Contractor fails or refuses to make and carry out the indicated repairs within the time fixed in said notice, the Director of Works may, without prejudice to any other rights which the Agency may have against the Contractor in law or equity, cause such repairs to be done at the expense of Contractor and deduct the cost thereof from the Security Deposit and/or from any sums due to the Contractor.

e) Upon final acceptance of the Works, the Agency shall return to the Contractor the Security Deposit or the portion which remains after deducting the cost of repairs, if any, as provided for in Article 4 (d) above.

f) No certificate, document or statement, other than the Final Acceptance Certificate, shall be deemed to constitute approval of any work, material or other matter or admission of the due performance of the Contract or any part thereof.
General Conditions (Cont’d)

Article 5. Damages for Delay, Abandonment and Cessation of Work by Contractor

In the event the Contractor fails to commence work within the time stipulated in Article 3 (a) above, stops the work without the necessary authorization in writing from the Director of Works, delay the progress of the work due to insufficient labour or lack of materials or for any other reason whatsoever, or abandons the work, the Agency may, after notice to the Contractor as provided for in Article 19 and subject to Article 20, cancel the Contract, appropriate the Security Deposit, withhold any sums due to the Contractor and/or take such other action as is specified hereunder without prejudice to any other rights which it may have against the Contractor in law or equity.

a) In the event the Contractor fails to commence, or, having commenced, stops the work without written authority, except as provided for in Article 20, the Agency may cancel the Contract and appropriate the Security Deposit and/or withhold any sums due to the Contractor as liquidated damages without prejudicing in any way its right to any further damages it may have suffered.

b) In the event of delay in the completion of the Works beyond the time specified, or such extended time in accordance with Article 3 (c), the Contractor shall pay the Agency as liquidated damages the sum of \( \text{(insert amount and currency of liquidated damages)} \) for each day of delay. Such liquidated damages may be deducted from any sums due to the Contractor under the Contract and/or recovered from the Security Deposit without any notice, notarial or otherwise, as the expiration of the time of completion is considered as sufficient notice in this respect.

c) In the event that it becomes apparent to the Agency that the work is progressing so slowly that it cannot reasonably be completed by the date fixed, it may, after due notice to the Contractor as provided for in Article 19, cancel the Contract and make other arrangements for the completion of the Works. In this event the Agency shall hold the Contractor liable for all expenses incurred together with a charge of fifteen per centum (15%) for overhead expenses and the Agency may apply any sums due to the Contractor and the Security Deposit to the debt without prejudice to any other rights which it may have in law or equity.
Article 6. Abandonment of Work by the Agency

a) The Agency shall have the right to stop construction of the Works at any time; in this event the Contractor shall be informed, as provided for in Article 19, and final quantities, as defined in Article 11, shall be assessed by the parties not later than twenty-eight (28) days from the date of the order to stop work. The Contractor shall not deliver any materials to the Works after receipt of the Agency’s notice to discontinue or abandon the Works.

b) In the event of abandonment of the Works by the Agency, the Contractor shall be compensated, taking into consideration payments hitherto made to the Contractor and the state of completion of the Works, in an amount to be decided by negotiation by the parties hereto. Such negotiation will take into consideration loss of anticipated profits, cost of removal of plant, loss on materials delivered to the Works, but not incorporated therein, subject to approval by the Agency of the said materials, loss on materials ordered in writing prior to any notice as provided for in Article 6 (a) and for use in the Works, in accordance with the Particular conditions and Specifications and Bills of Quantities, but not delivered to Site, and justified losses or damages of any kind or nature whatsoever arising or resulting from the aforesaid decision; providing, however, that in no case shall the Contractor receive more than eight per centum (8%) of the total value of the uncompleted Works. This payment shall constitute a full and final settlement by the Agency to the Contractor, and the Contractor shall provide an appropriate release to this effect in the form established by the Agency.

Article 7. Variations

a) The total cost of the Works as shown in the Drawings and Bills of Quantities shall not be deviated from to an extent exceeding twenty-five per centum (25%), except by agreement with the Contractor.

b) No variations shall be made by the Contractor until and unless he is so authorized by the Director of Works, in writing, and no claims for such variations shall be considered as valid unless the said authorization is produced by the Contractor.

c) Variations made by the Agency to the Drawings and Bills of Quantities requiring additional work or reducing the amount of work shall be governed by the provisions of this Contract just as if they were embodied in the original Drawings and Bills of Quantities.
General Conditions (Cont’d)

Article 7. Variations (Cont’d)

d) The Contractor shall not make any claim for variations in respect of any item mentioned directly or by implication in the Contract Documents. Additional or reduced quantities of work relating to items in the Bills of Quantities shall not be considered variations.

e) The rate to be paid for any item of work not mentioned directly or by implication in the Contract Documents shall where possible be related to similar or analogous items in the Bills of Quantities and be mutually agreed between the Contractor and the Director of Works and shall be confirmed in writing before the work is commenced. In the event these parties fail to agree upon a rate the Agency reserves the right to order the work to be carried out in any way it shall deem fit.

f) In the event the Agency is of the opinion that the variation does not lend itself readily to the establishment of a rate, the Contractor shall be paid for such work on the basis of actual labour costs and materials used, supported by suitable pay sheets and vouchers duly signed by the Director of Works. The Contractor shall receive, in addition, ten per centum (10%) of the above cost of labour and materials in full settlement of his services.

g) The Contractor shall furnish the Director of Works with a weekly statement of any claim for extra or unforeseen work in order that his claim may be investigated. No claim shall be considered which has not been included in a weekly statement or allowed if the Contractor cannot produce a written order from the Director of Works.
Article 8. Provision of Tools and Materials

a) The Contractor shall provide and transport all tools, plant, equipment and materials to the Site which are necessary for the execution of the work at his own risk and expense except for the provision of materials by the Agency as provided for in the Contract Documents.

b) The Agency shall provide materials for incorporation in the Works as described in the Contract Documents and shall have the absolute right to furnish other materials for the Works if it desires. The Contractor shall be responsible for collecting such materials from the locations specified in the Contract Documents and for transporting them to the Site at his own risk and expense and for incorporating them in the Works.

c) Where the unit rates in the Bills of Quantities include materials to be furnished by the Contractor and the Agency decides to exercise its right to furnish the materials itself, the cost of the materials at the local market rate, as assessed by the Agency, shall be deducted from any sums due to the Contractor or, at the discretion of the Director of Works, from the relevant rates in the Bills of Quantities.

d) The Contractor may request the Agency to purchase materials on his behalf. If the Agency agrees to purchase materials on behalf of the Contractor, it will expend its best efforts in doing so, but the Contractor will remain and be solely liable for any delays in the execution of the work resulting from the purchase of such materials whether occurring prior to or subsequent to the Contractor’s request. For materials purchased at the Contractor’s request the Agency will deduct from any sums due or which may become due to the Contractor, and/or from the Security Deposit or from the relevant rates in the Bills of Quantities, a sum equivalent to (i) the greater of the local market cost at the time of purchase or the Agency’s purchase cost, plus (ii) transport costs and an overall surcharge of ten percent for overhead expenses.

e) In the event of delay caused by the inability of the Contractor to furnish materials, the Agency may furnish such materials to the Contractor who shall incorporate them into the works. All of the provisions in Article 8, paragraph (d) above shall apply in such event.
(I) General Conditions (Cont’d)

Article 8. Provision of Tools and Materials (Cont’d)

f) All materials brought to the Site shall remain or become the property of the Agency subject to the terms and conditions of Article 9 and provided these materials are reasonably, properly and not prematurely brought to the Site and are adequately protected against weather and other risks of loss, damage or theft. The Contractor is responsible for any loss, damage or theft of materials on the Site. In the event of cancellation of the Contract because of any breach thereof on the part of the Contractor, the Contractor shall forfeit all claims to the materials on Site.

Article 9. Rejection of Materials and Works

a) The Director of Works shall, during the progress of the Works, have the power to order in writing

   (i) the removal from the Site of any materials which in the opinion of the Director or Works are not in accordance with the Contract Documents.

   (ii) the substitution of proper and suitable materials, and

   (iii) the removal and proper re-execution (not withstanding any previous test thereof or interim payment therefor) of any work which in respect of materials of workmanship is not, in the opinion of the Director of Works, in accordance with the Contract Documents.

All such orders shall be executed at the Contractor’s expense.

b) Should the Contractor fail to carry out such an order, after receipt of a notice issued in accordance with Article 19, the Agency shall be entitled to employ and pay other persons to carry out the order and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and recoverable from him by the Agency from the Security Deposit and/or from any sums due to the Contract without prejudice to any other rights which the Agency may have in law or equity.

c) In no case shall the rejection of materials or work entitle the Contractor to an extension of the Contract time.
(I) General Conditions (Cont’d)

Article 10. Conditions of Employment of Labour

a) The Contractor agrees to employ Palestine refugee workers to the maximum extent possible. The wages paid to such refugee workers shall not be less than the prevailing wages paid to non-refugee workers for comparable work.
b) The Contractor shall provide a competent general foreman to be in charge of the work who shall not be changed except with the consent of the Director of Works.
c) The Contractor agrees that his workmen and employees shall be considered for all purposes in his direct pay and employ and under his supervision and control. He shall be directly and personally responsible for discharging all obligations, financial or other, which may be or become owing to any such workman or employee or to his successors, assignees or personal representatives. There shall be no contractual or legal relations of any kind whatsoever between the Agency and any such workman or employee or any person employed in the performance of the Contractor’s obligations under this Contract.
d) The Director of Works may request and the Contractor agrees to accept the request for the immediate removal from the Site of any employee or worker of the Contractor adjudged by the Director of Works to be incompetent, disorderly, unreliable or of bad character. Such employee shall not again be employed on the Works.

Article 11. Measurements

a) The quantity of work done in pursuance of this Contract shall be computed in accordance with the method of measurement laid down by the Agency for the preparation of the Bills of Quantities. All measurements shall be net with no allowance being made for waste.

b) The Contractor shall provide without cost to the Agency any labour, which may be required for taking notes and measurements on Site.

c) Notes and measurements taken on Site shall be recorded by the Director of Works in the presence of the Contractor or his representative if he so desires.
UNITED NATIONS RELIEF AND WORKS AGENCY
FOR PALESTINE REFUGEES IN THE NEAR EAST

(I) General Conditions (Cont’d)

Article 11. Measurements (Cont’d)

d) The Contractor may be required to attend the taking of measurements or notes on Site at forty-eight (48) hours’ notice provided such notice is given to him in writing by the Director of Works. In the event that the Contractor does not attend at the place and time mentioned in the notice the measurements or notes may be taken by the Director of Works and the Contractor shall be deemed to have waived any objections to such measurements or notes.

e) The Director of Works and the Contractor or his representative shall both sign any measurement book or note book at the time the measurements are taken unless the Contractor is deemed to have waived his rights to object to the measurements or notes.

f) If the Contractor disputes the correctness of any measurement or note and refuses to sign the measurement book or note book he shall state the grounds of his objection in writing to the Director of Works, against a signed receipt, within forty-eight (48) hours. Failure to do so shall be deemed to be a waiver of any objection.

Article 12. Payment

a) Payments under this Contract shall be on the basis of the quantities and the unit rates of the work actually ordered to be done and completed by the Contractor and not by way of a lump sum, the aforesaid payments shall be made in MONTHLY Instalment, each payment being certified by the Director of Works.

b) Part payment in respect of work done and of materials brought to the Site in accordance with Article 8 (f) but not incorporated in the Works shall be permissible at the sole discretion of the Director of Works.

c) Payments to the Contractor before the final payment shall be deemed to be partial payments on the whole Contract and not final payments for any particular part thereof. The Agency shall have the right to review all such interim payments and adjust errors and omissions in the final payment including any arising from inaccurate or incomplete measurement.

d) Payments shall be made to the Contractor or his representative within twenty (20) days after receipt by the Director of Works of a correct account.
(I) General Conditions (Cont’d)

Article 13. Sub-Contracts

a) The Contractor shall not transfer, assign or sub-let any part of this Contract without the written consent of the Director of Works. Such consent, if given, shall not in any way relieve the Contractor of any of the duties, obligations or liabilities created by the terms and conditions of this Contract.

b) The Agency reserves the right, however, and the Contractor hereby expressly agrees that the Agency may nominate and select sub-contractors, artists or other persons to execute parts of the work not included in the Contract Documents, if it deems it necessary or expedient. Such persons shall be deemed to be sub-contractors of the Contractor.

c) The Contractor shall remain fully responsible to the Agency for the acts and omissions of his sub-contractors, if any, and of persons either directly or indirectly employed by them just as if such acts and omissions were done by persons directly employed by the Contractor.

d) In the event the Agency nominates or selects sub-contractors, artists or other persons as provided for in (b) above, the Contractor agrees to afford them full facilities and to permit the use of his scaffolding and plant in furtherance of the execution of the Work.

e) In the event any portion of this Contract is sub-contracted, as provided for above, the terms and conditions of this Contract shall apply equally to the sub-contractor.

f) Nothing contained in this Contract shall be interpreted as creating any contractual relationship between the sub-contractors and the Agency.

Article 14. Adherence by Contractor to Laws and Regulations

a) The Contractor shall be responsible for complying with and adhering to all laws and regulations of whatsoever kind or nature concerning zoning, building and construction, labour workmen’s compensation, discovery of antiquities, quarrying, municipal regulations and by-laws, governmental decrees and any and all other laws affecting or connected with the Works. He shall also be responsible for obtaining at his expense any and all permits connected with all phases of the Works including commencement and completion.
General Conditions (Cont’d)

Article 14. Adherence by Contractor to Laws and Regulations (Cont’d)

b) In the event the Contractor shall fail or refuse to adhere to any of the above mentioned laws or regulations, or fail or refuse to obtain any necessary permit, and the Agency suffers any damage thereby, the Agency may at its discretion cancel this Contract and/or appropriate the Security Deposit and/or any sums due to the Contractor without prejudice to any other rights which it may have in law or equity.

Article 15. Insurance to be maintained by Contractor

a) Workmen’s Compensation Insurance

i) The Contractor shall at all times be liable for, shall indemnify the Agency in respect of, and shall maintain at his expense such insurance with a Company designated by the Agency that will protect him as well as the Agency from any and all claims arising or resulting from the relevant workmen’s compensation acts.

ii) The Workmen’s compensation insurance must also cover the activities and employees of any sub-contractors of the Contractor.

b) Public Liability Insurance

The Contractor shall at all times be liable for, shall indemnify the Agency in respect of, and shall maintain at his expense such insurance with a Company designated by the Agency that will protect him as well as the Agency from any and all claims for damages, including those from Agency employees, due to bodily injury or death of any persons as well as from claims due to damage to adjoining or other real or personal property which may arise from and during operations under this Contract whether such operations be by himself or by any sub-contractor or anyone directly or indirectly employed by him. This insurance shall be in an amount, which is satisfactory to the Director of Works.
Article 15. Insurance to be Maintained by Contractor (Cont’d)

c) Fire Insurance

The Contractor shall at all times be liable for and shall indemnify the Agency in respect of all damage occasioned by fire and shall maintain at his expense fire insurance upon the entire structure on which the work of this Contract is to be done to one hundred per centum (100%) of the insurable value thereof unless the Director of Works decides otherwise, including items of labour and materials connected therewith, whether in or adjacent to the Works insured, and materials in place or to be used as part of the Works.

The Contractor shall provide said fire insurance in the joint names of himself and the Agency. Any loss sustained is to be made adjustable and payable to the Agency.

This insurance will not cover any tools, equipment or plant owned by the Contractor, his mechanics or sub-contractors since the provision for this insurance is designed for the sole protection of the Agency and its property.

The fire insurance must also cover the activities of any sub-contractors of the Contractor, and those deemed to be sub-contractors.

If the Contractor fails or refuses to provide the aforesaid insurance, the Agency may, at its discretion, after notice as provided for in Article 19, cancel this Contract and/or utilize the Security Deposit as well as any sums due to the Contractor, and procure the insurance on behalf of the Contractor without prejudice to any other rights that it may have in law or equity.

Article 16. Removal of Rubbish

a) The Contractor shall remove from the Site all rubbish or materials not required. At the completion of the work he shall leave the whole of the premises clean and in good condition to the satisfaction of the Director of Works.

b) In the event that the Contractor fails or refuses to leave the premises clean the Director of Works may remove the rubbish and charge the cost of the same to the Contractor by deduction from any sums due to him and/or from the Security Deposit.
(I) General Conditions (Cont’d)

Article 17. Gifts and Commissions

If it is discovered or determined that any bribe, commission, gift, loan or advantage is given or received by or on behalf of the Contractor in relation to any aspect of this Contract, then and in that event the Agency shall have the right to cancel the Contract immediately and appropriate the Security Deposit and/or withhold any sums due to the Contractor without prejudice to any rights the Agency may have in law or equity for damages suffered as a result of such cancellation.

Article 18. Agency’s Right to Terminate Contract

Without prejudice to the terms of Articles 5 and 6 of this Contract, the Agency may terminate the Contract if the Contractor should be adjudged a bankrupt, or if he becomes insolvent, or if he persistently disregards the instructions of the Director of Works, or if he has committed any other breach of this Contract. In such event the Agency may appropriate the Security Deposit and/or withhold any sums due to the Contractor without prejudice to any other rights, which it may have in law or equity.

Article 19. Notices

(a) All notices, except those issued under Article 20, or instruction form the Agency or its Director of Works to the Contractor or his representative shall be considered as duly served on the Contractor either when sent by registered mail to his address as stated in his tender, (Contractor’s address: insert contact name, address, telephone and fax number)

(b) All notices, except those issued under Article 11 (f) and 20, from the Contractor to the Agency or its Director of Works shall be considered as duly served on the Agency or its Director of Works when sent by registered mail to the Agency’s Field Officer or when handed to the Director of works against a signed receipt.

(c) Notices issued under Articles 11 (f) and 20 must be handed over against a signed receipt and not sent by registered mail.

(d) All notices or instructions sent by registered mail shall be deemed to have been served five (5) days after the date of mailing. The certificate received from the Post Office accepting the letter shall be conclusive evidence of the date of mailing.
(I) General Conditions (Cont’d)

Article 19. Notices (Cont’d)

(e) Notwithstanding anything to the contrary contained in this Contract, no legal or other proceeding, or formal notice, notarial or otherwise, shall be required to be given to the Contractor in the event the Agency is compelled to exercise its rights and particularly with respect to appropriation of the Security Deposit, cancellation of the Contract, or the withholding of funds under the terms of Articles 1, 2, 4, 5, 8, 9, 14, 15, 16, 17 and 18, since the written notice as provided for in paragraphs (a) and (b) above shall be deemed sufficient for all purposes.

Article 20. War and Special Risks

a) If during the currency of this Contract there shall be an outbreak of hostilities (whether war is declared or not) which involves the country in which the works are situated on a scale involving general mobilization and which materially affects the execution of the Works the Contractor or the Agency may, within twenty-eight (28) days of the date of the mobilization order, serve a notice terminating this Contract on the other party in accordance with Article 19 and the Contract shall be terminated fourteen (14) days from the date of service of the notice.

b) Payment for the work executed prior to the date of termination shall be made by the Agency within twenty (20) days of receipt by the Agency of a correct account. Payment in respect of materials delivered to the Site in accordance with Article 8 (f) shall be made at the local market rates plus ten percent (10%) for profit and overhead expenses. All payments shall be conditional upon the Contractor’s fulfilment of his obligations under Articles 8, 9, 16 and 19.

c) If during the Currency of this Contract there shall be an outbreak of hostilities, civil unrest, riots or commotions which materially affect the execution of the Works the Contractor or the Agency may within a period of twenty-eight (28) days of the commencement of the outbreak, serve notice on the other party in accordance with Article 19 of this Contract and the Contract shall be suspended for a period of time pending withdrawal of the notice and resumption of work by the Contractor provided that this period of time does not exceed twenty-eight (28) days. Delays in the work during such period shall not constitute delays within the meaning of Article 5 of this Contract.
(I) General Conditions (Cont’d)

Article 20. War and Special Risks (Cont’d)

d) Where a notice is served under paragraph (a) or paragraph (c) of this Article, it shall clearly state under which paragraph it is served, and the Contractor’s obligations under Article 8 (e) and (f) of this Contract will continue for the period of fourteen (14) days in the event of termination or for the period of suspension as the case may be. It shall be the duty of the Contractor, during such periods, to take all possible measures to safeguard the Works and materials from loss, theft or damage and these measures must be increased in proportion to the risks involved. It shall also be the duty of the Contractor to notify the Agency of the existence of any such risks.

e) If during the currency of this Contract the government instructs either party to terminate or suspend the work the party receiving the instruction shall serve notice of termination or suspension under the provisions of this Article and the matter shall be treated as one of termination or suspension as the case may be: the provisions of Article 5 and 6 of this Contract shall not be applicable to such a case.

Article 21. Disputes - Arbitration

a) In the event of any dispute arising from the interpretation or application of the terms and conditions of this Contract because of translation into other languages the English version shall be considered as the authentic text.

b) Any dispute shall be decided according to the provisions of this Contract. To the extent that these provisions do not fully cover the particular matter in dispute recourse may be had to the general principles of law and the lex loci contractus shall not have any overriding effect but may afford evidence of such general principles.

c) Any dispute arising out of the interpretation or application of the terms of this Contract shall, unless settled by direct negotiations, be referred to an Arbitrator who shall be appointed jointly by the parties. Should the parties not agree within thirty (30) days after request for arbitration by either party as to the choice of the Arbitrator, the Appointment shall be made by the President of the Court of Arbitration of the International Chamber of Commerce upon request of either party. The decision of the Arbitrator shall be final and binding upon the parties. It is understood, however, that the provisions of this Article and the submission of the Agency to an award of an Arbitrator do not constitute a waiver by the Agency of its immunity from any form of legal process.
Article 22. Tax Exemption

a) Article II, Section 7, of the Convention on the Privileges and Immunities of the United Nations provides, inter alia, that the United Nations, including its subsidiary organs (including UNRWA), is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties, and charges of a similar nature in respect of articles imported or exported for its official use. In the event any governmental authority refuses to recognize the exemptions of UNRWA from such taxes, restrictions, duties, or charges, the Contractor shall immediately consult with UNRWA to determine a mutually acceptable procedure.

b) The Contractor authorizes UNRWA to deduct from the Contractor's invoices any amount representing such truces, duties or charges, unless the Contractor has consulted with UNRWA before the payment thereof and UNRWA has, in each instance, specifically authorized the Contractor to pay such taxes, duties, or charges under written protest. In that event, the Contractor shall provide UNRWA with written evidence that payment of such taxes, duties or charges has been made and appropriately authorized, and UNRWA shall reimburse the Contractor for any such taxes, duties, or charges so authorized by UNRWA and paid by the Contractor under written protest.
(II) Special Conditions

1. Officials Not to Benefit

The Contractor warrants that no official of UNRWA has received or will be offered by the Contractor any direct or indirect benefit arising from the Contract or the award thereof. The Contractor agrees that breach of this provision is a breach of an essential term of this Contract.

2. Child Labour

The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor’s subsidiary or affiliated entities (if any) is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child’s education, or to be harmful to the child’s health or physical, mental, spiritual, moral, or social development. The Contractor acknowledges and agrees that the provisions hereof constitute an essential term of the Contract and that any breach of this representation and warranty shall entitle the Employer to terminate the Contract immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind.

3. Forced or Compulsory Labour

The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor’s subsidiary or affiliated entities (if any) employs “forced or compulsory labour” in any form. “Forced or compulsory labour” consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty. The Contractor acknowledges and agrees that the provisions hereof constitute an essential term of the Contract and that any breach of this representation and warranty shall entitle the Employer to terminate the Contract immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind.
4. Mines

The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor’s subsidiaries or affiliated entities (if any) is engaged in the sale or manufacture of anti-personnel mines or components utilized in the manufacture of anti-personnel mines. The Contractor acknowledges and agrees that the provisions hereof constitute an essential term of the Contract and that any breach of this representation and warranty shall entitle the Employer to terminate the Contract immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind.

5. Sexual Exploitation

The Contractor shall take all appropriate measures to prevent sexual exploitation or abuse of anyone by its employees or any other persons engaged and controlled by the Contractor to perform any services under the Contract. For these purposes, sexual activity with any person less than eighteen years of age, regardless of any laws relating to consent, shall constitute the sexual exploitation and abuse of such person. In addition, the Contractor shall refrain from, and shall take all reasonable and appropriate measures to prohibit its employees or other persons engaged and controlled by it from exchanging any money, goods, services, or other things of value, for sexual favours or activities, or from engaging any sexual activities that are exploitive or degrading to any person. The Contractor acknowledges and agrees that the provisions hereof constitute an essential term of the Contract and that any breach of these provisions shall entitle the Employer to terminate the Contract immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind.

The Employer shall not apply the foregoing standard relating to age in any case in which the Contractor’s personnel or any other person who may be engaged by the Contractor to perform any services under the Contract is married to the person less than the age of eighteen years with whom sexual activity has occurred and in which such marriage is recognized as valid under the laws of the country of citizenship of the Contractor’s personnel or such other person who may be engaged by the Contractor to perform any services under the Contract.
6. **Terrorism**
The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor’s subsidiary, affiliated entities (if any), suppliers, personnel and employees is engaged in any transactions with, and/or the provision of resources and support to, individuals and organisations associated with, receiving any type of training for, or engaged in, any act or offense described in Article 2, Sections 1, 3, 4 or 5 of the International Convention for the Suppression of the Financing of Terrorism, adopted by the General Assembly of the United Nations in Resolution 54/109 of 9 December 1999. The Contractor acknowledges and agrees that the provisions hereof constitute an essential term of the Contract and that any breach of this representation and warranty shall entitle the Employer to terminate the Contract immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind.

7. **Provisional Sum**

“Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the works or for the supply of plant, materials or services.

Each Provisional Sum shall only be used, in whole or in part, or not at all, in accordance with the Director of Works’ instructions, and the Total Value of the Contract shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Director of Works shall have instructed.

For each Provisional Sum, the Director of Works may instruct work to be executed (including plant, materials or services to be supplied) by the Contractor and valued under Article 7 [Variations]. The Contractor shall, when required by the Director of Works, produce quotations, invoices, vouchers and accounts or receipts in respect of Provisional Sums.

Further, if the Contract provides for advance payment, this advance payment shall be repaid through percentage deductions in Payment Certificates. Deductions shall commence in the Payment Certificate in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds ten per cent (10%) of the Total Value of the Contract less Provisional Sums.
8. Sufficiency of the Total Value of the Contract

The Contractor shall be deemed to:

(a) have satisfied himself as to the correctness and sufficiency of the Total Value of the Contract, and

(b) have based the Total Value of the Contract on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters.

Unless otherwise stated in the Contract, the Total Value of the Contract covers all the Contractor’s obligations under the Contract (including those under Provisional Sum, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

IN WITNESS WHEREOF the parties hereto by their duly authorized representatives have set their hands to duplicates, both of which shall be deemed as original, the day and year first above written.

For and on behalf of the Contractor

For and on behalf of the Agency

W I T N E S S E S (‘)

.....................................          .....................................

Signature                        Name

.....................................          .....................................

Address

.....................................          .....................................

.....................................          .....................................

* if necessary

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## (D) APPENDIX TO BUILDING CONTRACT

<table>
<thead>
<tr>
<th>Article</th>
<th>Description</th>
<th>Amount or Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a</td>
<td>Amount of Bond or Guarantee</td>
<td>10%</td>
</tr>
<tr>
<td>3a</td>
<td>Period for commencement from handing over the Site</td>
<td>5 Days</td>
</tr>
<tr>
<td>3c</td>
<td>Time for completion</td>
<td><em>insert period of Contract in weeks</em></td>
</tr>
<tr>
<td>4c</td>
<td>Period of Defects Repair</td>
<td>52 Weeks</td>
</tr>
<tr>
<td>5b</td>
<td>Amount of Liquidated Damages</td>
<td><em>insert amount and currency of liquidated damages</em></td>
</tr>
<tr>
<td>12d</td>
<td>Time within which payment to be made after receipt of application</td>
<td>20 Days</td>
</tr>
</tbody>
</table>
1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLE

(A) Scope

The Works comprise the erection, completion and maintenance of the buildings together with all ancillary buildings and Site works as shown on the Contract Drawings.

The Contractor shall supply all labour, materials, plant, equipment and all other things required for the erection, completion and maintenance of the Works as described, defined and shown in the Contract Documents.

(B) Standard of Workmanship

a) The Workmanship shall be of the kind and quality described, defined or shown in the Contract Documents and where the Workmanship is not described, defined or shown it shall be of the highest standard used in the locality wherein the Site is situated.

(C) Drawings

a) Two (2) copies of the Drawings listed in Appendix “A” shall be furnished to the Contractor before the commencement of the Works. The Drawings shall remain the property of the Agency and shall be returned to the Director of Works upon completion of the Works.

b) Such further detail drawings as are necessary for the proper completion of the Works shall be issued from time to time as required. These drawings shall be returned to the Director of Works upon completion of the Works.

c) The Contractor shall furnish the Director of Works with five (5) copies of the Shop Drawings required to be furnished in accordance with the Specifications for his approval. The Director of Works shall return one (1) copy of the Shop Drawings to the Contractor within seven (7) days of their receipt by the Director of Works with his comments, alterations or approval noted thereon. Should the Director of Works require alterations to the Shop Drawings, the Contractor shall prepare new drawings incorporating the required alterations and submit five (5) copies to the Director of Works for his approval.
1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(C) Drawings (Cont'd)

d) On completion of the Works and before the Provisional Acceptance of the Works the Contractor shall furnish to the Director of Works one (1) set of the negative drawings, if and when applicable, showing the layouts of the electrical, plumbing and drainage installations as required by the Specifications.

(D) Conflicts, Omissions, Etc. In the Contract Documents

a) Where there are contradictions in the Contract Documents preference shall be given in the following order:

(I) Detail drawings

(II) General drawings


(IV) Bills of Quantities

(V) Special Conditions

(VI) General Conditions

b) Omissions from the Contract Documents or the incorrect description of detailing of items which are necessary for the proper performance of the work shall be performed by the Contractor as if fully and correctly set forth, detailed or described in the Contract Documents.

c) The Contractor shall inform the Director of Works of all omissions, errors, conflicts and the like, which are found in the Contract Documents.

(E) Inspection of Site

a) The Contractor shall be deemed to have inspected the Site prior to the submission of his tender and to have satisfied himself as to the nature of the ground, the access to the Site, the availability of water, electricity and labour and all other factors affecting the execution and completion of the Works and to have allowed for all these factors in preparing his tender.
b) Before making his visit or visits to the Site the Contractor shall obtain the permission of the Director of Works.

(E) PARTICULAR CONDITIONS (Cont’d)

1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(F) Contractor’s Representative

a) The Contractor shall notify the Director of Works, in writing, before the commencement of the Works, of the name of the person authorized to receive instructions from the Director of Works on the Site. The person so authorized by the Contractor shall be at the Site during normal working hours.

b) The Contractor shall notify the Director of Works in writing, before the commencement of the Works, of the name of the General Foreman appointed by him to the Works.

(G) Director of Works

a) Before the commencement of the works the Director of Works shall be the Agency’s Field Engineering and Construction Services Officer.

b) After the commencement of the Works the Director of Works shall be the person nominated by the Agency’s Field Engineering and Construction Services Officer whose name shall be given, in writing, to the Contractor by the Field Engineering and Construction Services Officer before commencement of the Works.

(H) Meaning of “Approved” and “As Directed”

The words “approved” and/or “as directed” where used in the Contract Documents mean that the items to which these words apply shall be subjected to, carried out, applied, performed, executed, or otherwise dealt with, to the approval and satisfaction of the Director of Works.

(I) Materials supplied by the Agency

a) All materials will be provided, in principle, by the Contractor but shall in no way limit the Agency’s right to supply such materials as it may deem fit in accordance with Article 8 of the General Conditions. Such materials will be listed in Appendix “B”. 

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b) The Contractor shall allow in his tender for loading, unloading, transporting, handling, storing, unpacking, protecting, control and installation of all materials.

(E) PARTICULAR CONDITIONS (Cont’d)

1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(I) Materials supplied by the Agency (Cont’d)

c) The Contractor shall store the Agency supplied materials (if any) in a manner which facilitates checking and institute a system of control approved by the Director of Works, and hand over all unused material to the Director of Works on Completion of the Works.

d) The Contractor shall pay to the Agency the full market value of any Agency supplied materials (if any), which in the opinion of the Director of Works, are missing, have been misused, or used without approval, or where the amounts used are in excess of the quantities calculated to have been incorporated in the Works after a reasonable allowance has been made for waste.

e) Agency supplied materials (if any) shall be delivered to the Contractor during normal working hours at the discretion of the Agency for within fourteen (14) days of a written request being received from the Contractor for the delivery of the material.

(J) Demolition

a) The written approval of the Director of Works shall be obtained before any demolition work is commenced.

(K) Site Meetings

a) The Contractor, or his authorized representative, shall attend meetings on the Site at regular intervals to be decided upon by the Director of Works.

(L) Quantities, Measurements, and Unit Rates

a) The Quantities, Measurements, and Unit Rates, shall be measured in accordance with, and shall include for, the items detailed in the Contract Documents and the “General Instructions and Notes on Pricing and Measurements”, as under (F).

(M) Specification

a) Where materials are not described in the specification or in the other Contract Documents they shall be of the best quality available on the local market.

b) Materials, goods and workmanship described in any one section or trade of the Specification
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shall apply throughout the Specification unless otherwise described.

(E) PARTICULAR CONDITIONS (Cont’d)

1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)”

(a) General

(i) Objective

The Contractor is required to submit a written quality plan stating actions to be taken to deliver the construction quality required by the Contract.

The CQP is intended to assist in:

- identifying what Quality Control (QC) tasks are needed, such as examining, checking, inspecting, materials sampling, testing and all necessary means of controlling and measuring the characteristics and conformity of an item, process, or feature to established requirements,
- scheduling and controlling the tasks required,
- ensuring that all contractual quality standards and requirements are met,
- Identifying the necessary precautions to be taken by the Contractor to assure the safety of all persons and protection of the environment and property at, on or about the Site and any other activities or locations related to the project, and documenting quality, safety and environmental management activities.

(ii) Contractor’s Responsibility

The Contractor shall have overall responsibility for the quality of construction and all Works, the safety of all persons and the protection of the environment and property at, on or about the Site and any other activities and locations related to the project and shall conduct quality, safety and environmental management activities, which shall include, but not necessarily limited to, inspection, material testing, providing and enforcing the use of safety equipment, providing means and measures to protect the environment, mitigate or prevent negative impact, and making the necessary erections and safeguards.

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1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

The Contractor shall provide QC testing procedures and testing frequencies according to the Contract. The CQP shall be submitted to the Director of Works for review but such review shall not mean approval or acceptance. These Guidelines and such review do not relieve the Contractor of his/her obligations under the Contract and do not supersede any contractual requirements. The CQP, these Guidelines and the review of the CQP by the Agency shall not imply that the CQP will result in Contract compliance. It is the responsibility of the Contractor to demonstrate such compliance. The CQP contents shall not supplement or supersede any contractual requirement.

(ii) Agency’s Responsibility

The Agency is expected to:

- review the CQP for consistency, reasonability and that it clearly addresses all quality, safety and environmental related requirements of the Contract,
- ensure that the Contractor’s quality, safety and environmental management activities adhere to the CQP and comply with the Contract requirements, and
- ensure that the Contractor’s construction management, including scheduling, invoicing, shop drawings and document control, comply with the Contract requirements.

b) Contents of CQP

The Contractor shall plan and implement a QC system documenting all those planned and systematic actions necessary to provide confidence that all materials, Works and workmanship delivered to the Agency will satisfy the given requirements for quality whether manufactured or processed by the Contractor or procured from
PARTICULAR CONDITIONS (Cont’d)

1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

Sub-contractors or suppliers, all in accordance with the Contract. The CQP shall describe the type and frequency of inspection, sampling, and testing deemed necessary to measure and control the various properties of materials and workmanship of all construction processes within the tolerances governed by the Agency’s standard specifications, standard drawings, all in accordance with the Contract. The Contractor shall plan and implement the necessary safety precautions to assure the safety of all persons and protection of the environment and property at, on or about the Site and any other activities or locations related to the project. The Contractor shall comply with the Contract whether or not an Agency representative is present.

c) Outline of CQP

The CQP shall generally address:

- who will be responsible for quality, safety and protection of environment during the project,
- what that (those) person(s) will do to ensure Contract compliance,
- where these activities will be performed,
- when these activities will be performed, and
- how inspections will be performed.

The CQP shall include:

(i) Organizational Structure

The CQP shall describe the Contractor’s quality, safety and environmental management organization for all of the project construction processes. As a minimum, the CQP shall identify the following positions and persons and incorporate them into the Contractor’s construction management system:
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(E) PARTICULAR CONDITIONS (Cont’d)

1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

Contractor’s Representative: unless stated to the contrary in other parts of the Contract, the Contractor’s Representative shall be responsible for the overall project construction, and Contract administration for the project. However, the Contractor shall, in any case, document and submit evidence if required, of the authority, qualifications and relevant experience of his/her representative, and shall provide the Agency with the position and the name of the person who is responsible and authorized for the above duties,

- Construction Quality Manager: the person who shall be responsible for the Contractor’s quality management and has the responsibility to perform the Contractor’s workmanship inspection, implement quality planning, oversee the Contractor’s QC testing, and coordinate with the Agency in matters related to quality. The Construction Quality Manager shall be responsible for submitting requested inspection, testing and other data to the Agency on a daily basis or as determined by the Contract. The Contractor shall document and submit evidence if required, of the responsibility, authority, qualifications and relevant experience of the Construction Quality Manager. The Construction Quality Manager shall be a different person from the Contractor’s Representative,

- Safety and Environment Protection Manager: the person who has the responsibility to perform the Contractor’s safety and environmental planning, implement and oversee the Contractor’s safety and environmental precautions and coordinate with the Agency in such matters. This person shall be different from the Contractor’s Representative but may be the same person responsible for construction quality, though it is preferable to be a different person. The Contractor shall document and submit evidence if required, of the responsibility, authority, qualifications and relevant experience of the Safety Manager.
(E) PARTICULAR CONDITIONS (Cont’d)

1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

(ii) Process Control Testing

List the materials to be tested, tests to be conducted, the location of sampling, the frequency of testing, name and location of testing laboratory and detailed testing schedule based on the project phases and other requirements, as per the Contract.

(iii) Inspection/Control Procedures:

This is the narrative portion of the CQP. The narrative covering inspection/control procedures should adequately address the quality, safety and environmental process basics in a maximum of five pages for each phase of construction. It shall describe the Contractor’s inspection system and address each of the following subjects in the phases of the project, as applicable:

- Quality Subjects:
  - reviewing all Contract requirements with persons who will perform the Works,
  - ensuring compliance of component material to the Contract requirements,
  - coordination of all submittals including certifications,
  - ensuring capability of equipment and personnel to comply with the Contract requirements,
  - conducting intermittent or continuous inspection during construction to identify and correct deficiencies,
  - ensuring testing is accomplished,
  - coordination of surveying and staking of the Works,
  - establishing standards of workmanship,
  - provision of training as necessary,
1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

- inspection of completed phases before scheduled Agency inspection/acceptance, and
- provision of feedback and system changes to prevent repeated deficiencies.

• Safety Subjects:
  - reviewing all necessary safety precautions with persons who will perform the Works,
  - ensuring the removal of hazards,
  - ensuring the provision of personal protective equipment, enforcing its use, submitting a list of these equipment and ensuring that staff are trained on using them,
  - ensuring that accidents related to safety or incidents that could have a safety issue are notified immediately, communicated to the Agency and reported in writing within 24 hours,
  - making regular safety inspections, and
  - provision of training as necessary.

• Environmental Subjects:
  - reviewing all necessary environmental precautions with persons who will perform the Works,
  - ensuring that accidents related to environment or incidents that could have an environmental issue are notified immediately, communicated to the Agency and reported in writing within 24 hours, and
  - provision of training as necessary.
1. **INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)**

   (N) **Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)**

   A building construction project may be divided into phases, such as:

   - excavation,
   - foundation,
   - skeleton,
   - internal works, and
   - external works.

   Every phase may be further divided into the following stages:

   - preparatory,
   - start up, and
   - production.

   However, it is left to the Contractor to group items of work in logical phases to facilitate the development of the CQP.

   (iv) **Subcontractors:**

   The Contractor is contractually responsible for all the Works. The Contractor must therefore address how he/she will monitor and verify subcontractor/supplier quality, safety and environmental related activities as a part of the CQP.

   Include the work of all subcontractors. If a subcontractor is to perform work under this section, detail how that subcontractor will interface with the Contractor's and/or other subcontractor's organizations.
1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

(v) Description of Records:
The Contractor shall provide the Agency with a list for the records that he/she will maintain and make the originals available to the Agency and submit a copy (certified by the Contractor as a true copy) to the Agency, including inspection records, tests, photos for the different stages in the project, safety and environmental records and all records resulting from implementation of the CQP. The Contractor shall submit these records at request, but as a minimum with interim payments. Complete copies shall be submitted to the Agency together with the final payment request.

(vi) Wherever the CQP is inconsistent with actual work progress and/or whenever the quality control and safety system or quality control and safety personnel changes, the Contractor shall revise the CQP and submit it to the Agency for review. If in the opinion of the Director Works the CQP is no longer representing the actual state of the project, he/she may request the Contractor to submit a revised CQP. The Contractor, if so requested, shall submit a revised CQP within 7 days of receipt of such a request.

d) Submittal

- The Contractor shall submit to the Director of Works for his/her review the CQP within one month from Contract signature and not later than the date of handover of the Site. No payments will be made to the Contractor before submitting the CQP. The Contractor shall be responsible for all consequences, including delay and costs resulting from his/her failure to submit the CQP as per these Guidelines. The Agency shall not incur any losses or additional costs because of this delay. The Contractor shall not be entitled to an extension of time, or to payment of the costs, resulting from his/her failure to submit the CQP or a revised CQP, as per these Guidelines,
1. INTRODUCTION, GENERAL CLAUSES AND PREAMBLES (Cont’d)

(N) Guidelines for Minimum Requirements for “Contractor’s Quality Plan (CQP)” (Cont’d)

- Unless the Director of Works, within 7 days of receiving the first CQP or within 7 days of receiving a revised CQP, gives notice to the Contractor stating the extent to which the CQP does not comply with the Contract, the Contractor shall proceed in accordance with the Progress Schedule and the CQP, subject to his/her other obligations under the Contract.
UNITED NATIONS RELIEF AND WORKS AGENCY
FOR PALESTINE REFUGEES IN THE NEAR EAST

(F) GENERAL INSTRUCTIONS AND NOTES ON PRICING AND MEASUREMENT

1. Generally
   (A) Description

   The description given against the items in the Bills of Quantities do not necessarily describe fully all the work to be performed. The Contractor shall refer to the Contract Documents and these Notes wherein the work to be executed and the materials supplied for each item in the Bills of Quantities is fully shown and/or described.

   (B) Measurements

   a) Unless otherwise stated, all work has been and/or will be measured net as executed or fixed in place with no allowance made for laps or waste.

   b) The dimensions given in the Bills of Quantities are generally in the sequence LENGTH-WIDTH-HEIGHT.

   c) All quantities have been taken up or down to the nearest meter (or other unit) and where exactly half a meter (or other unit) results the quantities have been taken to the meter (or other unit) above. The same procedure will be followed for any re-measurements.

   d) The quantities given for each item in the Bills of Quantities are the estimated quantities of the work to be executed. Re-measurement of the works shall be carried out and the measurements recorded in a measurement book to be agreed by the Contractor and the Director of Works representative.

   e) The quantities for items stated to be provisional in the Bills of Quantities are indicative only where the exact nature of the works cannot be determined at the time of the production of Contract documents, and these shall be re-measured in accordance with the instructions given hereafter.

   f) The quantities for works under provisional sums shall be estimated by the Director of Works before instructing any works under this sum. The value of the final works shall be determined in accordance with actual quantities after re-measurement or on the basis of lump sum as the case may be in the original instructions of the Director of Works.

   (C) Pricing

   a) The Contractor shall satisfy himself as to the meaning of every item in the bills of quantities and the rates and prices inserted by the Contractor against the items shall be deemed to include for all his obligations under the Contract and for all other matters and things necessary for the proper construction, completion and maintenance of the Works including, but not limited to, all temporary work, the provision and use of all plant and equipment (both mechanical and non-mechanical):
1. Generally (Cont’d)
   (C) Pricing (Cont’d)
   a) (Cont’d)
      Shifting, altering and adapting the temporary work, plant and equipment as required during
      the progress of the Works and removing on completion including making good any work or
      surface disturbed; providing samples of materials and/or workmanship as detailed in the
      Specification; the provision of bonds and guarantees; all work in connection with the
      measurement of the Works and the preparation of the final account, profit, all establishing
      charges, overheads and other on-costs of whatsoever nature. No claim will be considered in
      respect of any or all these items.
   
   b) Prices for all items shall be deemed to include for all straight raking and circular cutting and
      consequent waste.
   
   c) The Contractor shall price all items which he considers to have a value. Items which are not
      priced by the Contractor will be deemed to be of no value and their price has been included
      in the price of other items.
   
   d) The Contractor shall produce a detailed analysis of his unit rates to the Director of Works
      within twenty-four (24) hours of being requested to do so.
   
   e) The Contractor is requested to price identical items in the Bills of Quantities at the same
      rates.
   
   f) Contractors are instructed not to give discount on the summary page of the tender. If a
      discount is offered on the summary page as lump sum or as a percentage, the Agency shall at
      its own discretion, and with no need for the approval of the bidder, calculate the discount as
      a percentage of the total value of the bid and apply that percentage on each unit rate offered.

   (D) Quantities
   
   a) The quantities given in the Bills of Quantities have been calculated from the drawings
      listed in Appendix “A” in accordance with the method of measurements stated under the
      trade headings set out hereinafter.
   
   b) The quantities given in the Bills of Quantities may be used as a basis for ordering
      materials, but should be checked before any orders are placed. No claim for extra or
      delay will be entertained should the quantities given in the Bill of Quantities prove to be
      inaccurate.
2. EXCAVATION AND EARTHWORKS

(A) Measurements

   a) Excavation shall be measured by cubic volume. The volume shall be calculated by taking the area of the slab, bed, footing, base and the like and multiplying by the vertical depth. No allowance will be made for increase in bulk after excavation. No allowance will be made for working space.

   b) Trench excavation for drain and water pipes and electricity cables and excavation for manholes and percolation pits is included in the items of pipework, cabling manholes and percolation pits and will not be measured separately.

   c) Hardcore or Granular Fill beds shall be measured by cubic volume. The volume shall be calculated by taking the area of the bed and multiplying by the consolidated depth, including finishing, to a maximum depth of 15cm. Filling required below this 15cm depth is intended to be of suitable materials from the excavation and no extra will be paid for hardcore or granular fill used in lieu thereof.

(B) Rates

   a) Rates for excavation shall include for:

      (I) Clearing the Site of all rubbish, debris, shrubs, trees, bushes, plants, fence, and the like including grubbing up roots and foundations prior to the commencement of the Works.

      (II) Excavation to any depth.

      (III) Excavation in any material whatsoever found, including rock.

      (IV) Excavation circular on plan.

      (V) Allowance for working space.

      (VI) Excavating below water-table level.

      (VII) Keeping excavations clear of water.
2. EXCAVATION AND EARTHWORKS (Cont’d)

(B) Rates (Cont’d)

(VIII) Levelling, ramming, trimming and grading bottoms of excavations in rock.

(IX) Planking and strutting.

(X) Selecting suitable material from the excavations and returning, filling and ramming in layers around foundations and to underside or hardcore beds including all multiple handling and transport about the Site.

b) Rates for hardcore beds shall include for:

(I) Trimming and levelling ground under.

(II) Ramming and consolidation.

(III) Loss of bulk in consolidation.

(IV) Finishing top surface to receive concrete, paving and the like.
3. **CONCRETE WORK**

(A) **Measurements**

a) Concrete work shall be measured net.

No deductions will be made for:

(I) The volume of concrete displaced by embedded steel,

(II) Voids not exceeding 0.10 meter super in concrete measured superficially.

(III) Voids not exceeding 0.05 meter cube in concrete measured cube.

b) Solid concrete slabs shall be measured superficially. All other concrete work will be measured cube except where otherwise stated below.

c) Forming channels (where measured separately) in concrete shall be measured run.

d) Forming urinal slots including trades in concrete shall be measured by number.

e) Precast concrete:
   (I) Paving slabs shall be measured superficially,
   (II) Sills, copings and rainwater channels shall be measured run,
   (III) Manhole covers and latrine slabs shall be measured by number.

f) Expansion Joint:
   (I) Filler shall be measured superficially,
   (II) Pointing shall be measured run.

g) Concrete items forming part of manholes and percolation pits are included in the items of manholes and percolation pits and will not be measured separately.

h) Concrete slabs shall be measured superficially for the full thickness over beams and the like.

i) Drop beams and the like shall be measured only as the portion projecting from the slab or other work.
3. **CONCRETE WORK (Cont’d)**

(A) **Measurements (Cont’d)**

j) Concrete columns shall be measured the full height taken through slabs, beams and the like.

k) Hollow block in slabs shall be measured superficially, or by number.

(B) **Rates**

a) Rates for concrete work shall include for:

   (I) Supply and storage of cement (or otherwise shown in Appendix “B”),

   (II) Supply and storage of aggregates and water,

   (III) Mixing and placing in position,

   (IV) Packing and tamping around reinforcement,

   (V) Vibrating (if specified),

   (VI) Grading, tamping and trowelling,

   (VII) Formwork, shuttering and supports,

   (VIII) Supplying reinforcement and storing on Site including cutting, bending and fixing in position and providing all tying wire, distance places spacers,

   (IX) Finish to exposed faces,

   (X) Curing,

   (XI) Work of any cross-sectional area,

   (XII) Work at any height,

   (XIII) Curved work,

   (XIV) Forming mortices and grouting in,

   (XV) Forming grooves, throats, holes, chases, re-bates, chamfers, splayed angels, mouldings and the like,

   (XVI) Casting in or cutting and pinning plugs, holdfasts, brackets, and the like,

   (XVII) Hoisting to any height and bedding, jointing and pointing,

   (XVIII) Wall ties.
4. BLOCKWORK (Cont’d)
   (A) Measurements (Cont’d)
   a) Blockwork shall be measured net. No deductions will be made for voids or openings of less than 0.10 m² in area.
   b) Blockwork shall be measured superficially except for walls less than 25cm in height which shall be measured run.
   c) Courses of solid blockwork in hollow block walls shall be measured run.
   d) Forming openings through block walls (other than honeycomb walls and Claustra walling) shall be measured by number.
   e) Thickness given refers to the thickness shown on the drawings and no allowance will be made for any additional thickness due to uneven or bad workmanship.
   f) Ventilating pipes shall be measured by number.

   (B) Rates
   a) Rates for blockwork shall include for:
      (I) Supply and storage of cement (or otherwise shown in Appendix “B”),
      (II) Supply and storage of aggregates, water and other materials,
      (III) Manufacture and curing of blocks,
      (IV) Laying blocks including horizontal and vertical mortar joints,
      (V) Work of all Classifications in any location,
      (VI) Finishing fair and pointing to exposed faces,
      (VII) Rough and fair cutting,
      (VIII) Cutting or leaving holes, chases, grooves, mortices, sinkings and the like and making good,
4. **BLOCKWORK (Cont’d)**
   
   (B) **Rates (Cont’d)**
   
   (IX) Cutting and pinning or building in ends of lintels, steps, timbers, rails, brackets, steel sections and the like, and making good,
   
   (X) Concrete filling and reinforcing rods to cavities at quoins and door and window openings,
   
   (XI) Cutting and bonding at angles, intersections and the like.

   b) Rates for ventilating pipes shall include for:

   (I) Cutting and pinning or building in,

   (II) Accessories.
5. STONWORK

(A) Measurements

a) Thicknesses given refer to the nominal thickness or the thickness shown on the drawing. No allowance will be made for any additional thickness due to uneven or bad workmanship or to variations in the thickness of the stone.

b) Stonework shall be measured in square meters, net as laid, with the surface area of Jambs, Lintels & Sills added, with no allowance made for Lintels, Jambs, Sills, Quoin stones… etc.

c) Rubble stone walls shall be measured by volume and/or in square meters as specified in the Bills of Quantities.

Coping Stones shall be measured in Linear Meter for each Width & Thickness.

Other stone items shall be measured net as listed in the Bill of Quantities.

(B) Rates

a) Rates for stone work shall include for:

(I) Supply and storage of cement (or otherwise shown in Appendix “B”).

(II) Supply and storage of stone, aggregates, water and other materials,

(III) Laying stones including coursing, bonding, and all mortar joints,

(IV) Work of all classifications in any location,

(V) Face or surface finishing including all openings, returns, reveals and the like,

(VI) Rough and fair cutting,

(VII) Tying to backing material,

(VIII) Concrete backing where included with stonework item,

(IX) Cutting or leaving holes, chases, grooves, mortices, sinkings and the like, and making good,

(X) Cutting and pinning or building in ends of lintels, steps, timbers, rails, brackets, steel sections and the like, and making good.
6. CARPENTRY AND JOINERY WORK

(A) Measurements

a) Sizes of timber given in the Bills of Quantities are finished sizes after planning to provide wrought faces.
b) Sizes of doors shall be taken over the frame and shall include transom lights, sidelights and the like. The finished floor level shall be taken as the bottom of the floor and frame.
c) Sizes of fittings shall be taken as the gross overall measurements including legs, bearers, brackets and the like.
d) Display board panels shall be measured superficially.
e) Purlins, coat rail, display board and chalkboard frames, chalk trays, pelmets, shelves, shelf divisions, and worktops shall be measured run.
f) Doors, pairs of doors, benches and chalkboards shall be measured by number.

(B) Rates

a) Rates for carpentry and joinery work shall include for:

(I) Any length of timber,

(II) Joints in the running length of timber,

(III) Raking, curved or circular work and labours,

(IV) Framing,

(V) Forming holes, angles, ends, mitres, rebates, splayed edges, grooves, chamfers, scribed edges, rounded edges, rounded corners, notches, sinkings, fitted ends, far ends and the like,

(VI) Cutting and fitting around obstructions.

(VII) Forming mouldings,

(VIII) Nosings, bed moulds, margins, and the like,
6. **CARPENTRY AND JOINERY WORK (Cont’d)**

   **(B) Rates (Cont’d)**

   (IX) Facing and edging to block-board,

   (X) Bedding and painting,

   (XI) Grounds, blockings and backings,

   (XII) Plugging concrete, blockwork, and stonework, and making good,

   (XIII) Ironmongery including screws, temporary fixing, re-fixing, oiling and adjusting,

   (XIV) Providing two keys for each lock including tagging,

   (XV) Hardware including nails, screws, dowels, cramps and the like,

   (XVI) Steel legs, brackets, bearers and other supports including painting,

   (XVII) Glass and glazing including cutting to size and putty,

   (XVIII) Fly-screening including cutting to size,

   (XIX) Preparing surfaces to receive finishes,

   (XX) Painting, varnishing, polishing, oiling, and the like, to any area or width in any location including work in multicolours and cutting in edges.
7. **METALWORK**

(A) **Measurements**

a) Items of steel which are measured by weight shall have the weight calculated from the standard weight tables with no allowance made for rolling margin.

b) Windows, doors, pairs of doors and gates shall be measured by number.

c) Curtain tracks and expansion joint covers shall be measured by run.

d) Mesh to screens shall be measured superficially.

e) All other metalwork shall be measured by weight.

(B) **Rates**

a) Rates for metalwork shall include for:

(I) Preparing shop drawings,

(II) Cutting,

(III) Assembling,

(IV) Welding and grinding,

(V) Drilling, countersinking, screwing, bolting and riveting,

(VI) Bedding and pointing,

(VII) Lugs, plugs, holdfasts and the like,

(VIII) Ironmongery including temporary fixing, refixing, oiling and adjusting,

(IX) Providing two keys for each lock and padlock including tagging,

(X) Hardware including cramps, dowels, and the like,

(XI) Glass and glazing including cutting to size and putty,

(XII) Preparing surfaces for and painting one coat of primer before fixing,

(XIII) Painting to any area or width in any location including work in multicolours and cutting in edges.
8. **PLASTERWORK AND OTHER WALL, FLOOR & CEILING FINISHES**

(A) **Measurements**

a) All finishes shall be measured net. No deductions will be made for voids not exceeding 0.50 m² in areas measured superficially.

b) All finishes, except skirting and sills, shall be measured superficially.

c) Skirting and sills shall be measured run.

(B) **Rates**

a) Rates for finishes shall include for:

   (I) Supply and storage of cement (or otherwise shown in Appendix “B”),

   (II) Supply and storage of aggregates and water,

   (III) Mixing,

   (IV) Hacking concrete, applying cement slurry or raking out joints of blockwork to form key,

   (V) Application to any surface,

   (VI) Any width or area,

   (VII) Any location and any height,

   (VIII) Beds, bedding and backing,

   (IX) Finish to surface,

   (X) Finish to edges and arises,

   (XI) Grouting and pointing,
8. PLASTERWORK AND OTHER WALL, FLOOR & CEILING FINISHES (Cont’d)

(B) Rates (Cont’d)

(XII) Making good around steel sections, pipes, tubes, bars, brackets, outlets and the like,

(XIII) Finish to falls, cross-falls and currents,

(XIV) Forming bays including joints,

(XV) Treating surfaces with dust proofer, hardener and the like,

(XVI) Ends, intersections, angles, ramps, and the like on skirting,

(XVII) Forming rounded top edges and coves at bottom on skirting.

(B) Rates

a) Rates for tiling shall include for:

(I) Purpose made tiles including round edge tiles and bull-nosed tiles.

b) Rates for Precast terrazzo items shall include for:

(I) Forming holes,

(II) Forming grooves.
9. **ROOF FINISHES**

   (A) **Measurements**
   
   a) All finishes shall be measured net.
   
   b) All finishes, except triangular shaped fillets and cement and sand lining to gutters, shall be measured superficially.
   
   c) Triangular shaped fillets and cement and sand lining to gutters shall be measured run.

   (B) **Rates**
   
   a) Rates for cement and sand work shall include for:

   (I) Supply and storage of cement (or otherwise shown in Appendix “B”),

   (II) Supply and storage of aggregates and water,

   (III) Mixing,

   (IV) Hacking concrete, applying cement slurry or raking out joints of blockwork to form key,

   (V) Application to any surface,

   (VI) Any width or area,

   (VII) Finish to surface,

   (VIII) Finish to falls, cross-falls and currents,

   (IX) Forming bays including joints,

   (X) Finish to edges and arrises,

   (XI) Making good around steel sections, pipes, tubes, bars, brackets, outlets, and the like,

   (XII) Ends, intersections, ramps, and the like on fillets.
9. **ROOF FINISHES (Cont’d)**

   **(B) Rates (Cont’d)**

   b) Rates for water proofing shall include for:

      (I) Preparation of surface,

      (II) Any area or width,

      (III) Cutting in edges.

   c) Rates for roof sheeting shall include for:

      (I) Side and end laps,

      (II) Fixings including bolts, hook bolts, screws and washers,

      (III) Sheets of any width or length.
10. PLUMBING WORK

(A) Measurements

a) All plumbing work, except rainwater pipes and water supply pipework in water points, shall be measured by number.

b) Rainwater pipes and water supply pipework in water points shall be measured run over fittings.

c) Pipework in frames to shading sheds shall be measured run over fittings.

(B) Rates

a) Rates generally shall include for:

(I) Cutting or forming all chases, holes, and the like,

(II) Pipe sleeves,

(III) Fixing brackets, clips, holderbats, hangers, and the like,

(IV) Temporary and final fixing,

(V) Nails, screws, bolts, nuts, washers, holes, plugs, and the like,

(VI) Building in or cutting and pinning,

(VII) Testing and drawings,

(VIII) Painting,

(IX) All work of other trades in connection with plumbing work including all making good.

b) Rates for sanitary fittings, isolated taps and gullies shall include for:

(I) All pipework in connection therewith and connections thereto including connection to the nearest manhole of gully and to the cold water storage tank.
10. PLUMBING WORK (Cont’d)

(B) Rates (Cont’d)

c) Rates for pipework including pipework in frames to shading sheds shall include for:

(I) Joints in the running length,

(II) Nipples, connections, sockets, ferrules, couplings, back-nuts, unions, and the like,

(III) Bends, elbows, tees, reducers, access doors, cleaning eyes, blank caps, stop valves, and the like,

(IV) Welded joints and connections including grinding,

(V) Lagging and wrapping,

(VI) Excavation, bedding and backfilling.
11. **ELECTRICAL WORK**

(A) **Measurements**
All electrical work shall be measured by number.

(B) **Rates**

a) Rates generally shall include for:

   (I) Cutting or forming all chases, recesses, holes and the like,

   (II) Conduit sleeves,

   (III) Fixing brackets, clips, holderbats, hangers, and the like,

   (IV) Temporary and final fixing,

   (V) Nails, screws, bolts, nuts, washers, holes, plugs, and the like,

   (VI) Building in or cutting and pinning,

   (VII) Testing and drawings,

   (VIII) Painting,

   (IX) All work of other trades in connection with electrical work including all making good.

b) Rates for fittings, switches, and fuseboards shall include for:

   (I) Conduit and wiring to and between fittings, switches, and fuseboards (except connections to supply company’s main) including all fittings, boxes, connectors and the like and making connections,

   (II) Lamps, bulbs, tubes and the like,

   (III) Plates and covers,

   (IV) The rate for the connection to the Supply Company’s main shall include for:

   (I) All the supply company’s charges for making the connection to the main,

   (II) Wiring or cabling between the supply company’s mains and the distribution board,

   (III) Underground conduit and junction boxes including excavation and backfilling,

   (IV) Poles including insulators.
12. **GLAZING WORK**

   **(A) Measurements**

   Glass and glazing work is included with the items in which the glass is fixed and will not be measured separately.

   **(B) Rates**

   Rates for glass and glazing work shall include for:

   (I) Any size, shape and area,

   (II) Glazing to wood or metal,

   (III) Bedding edges,

   (IV) Labours to edges,

   (V) Drilling holes and grinding.
13. PAINTING AND DECORATING

(A) Measurements

a) Painting and decorating to walls, ceilings and the like shall be measured superficially.

b) Painting and decorating to all other surfaces, items and things are included in the items of surfaces, items and things, and will not be measured separately.

(B) Rates

Rates for painting and decorating work shall include for:

(I) Preparing of surface including puttying, sealing and priming,

(II) Any area or width,

(III) Any location,

(IV) Work in multicolours,

(V) Cutting in edges.
14. DEMOLITIONS AND ALTERATIONS

(A) Measurements

a) Unless otherwise stated, old materials shall be understood to become the property of the Contractor and shall be cleared away; Old materials required to remain the property of the Agency shall be so described; setting aside and storing of such materials shall be given in the description.

b) Removing individual fittings, fixtures engineering installations or the like from and existing structure shall be given as an item; stating the size, or enumerated. Those required to be set aside for re-fixing shall be so described.

c) Removing finishing or coverings to existing structures shall be given as items, indicating the quantity, or in square meters, stating the nature of the finishing or coverings.

d) Demolishing individual structures or part thereof, shall be given as an item, stating the dimensions. Alternatively, demolishing all structure on Site may be given as one item.

e) Cutting openings in existing structures and alterations to existing structures shall be given either as an item or enumerated, stating the size of the opening and the type and thickness of the existing structure. Making good all work damaged shall be understood to be included. The provision of new lintels shall be included in the description of such work.

f) The provision of temporary screens and coverings to protect the existing structure shall be understood to be included in the demolition and alteration items.

g) Shoring incidental to demolitions and alterations, together with clearing away and making good all work damaged, shall be understood to be included. Shoring, other than that incidental to demolitions and alterations, shall be given as an item stating the locations; clearing away and making good all work damaged shall be understood to be included.
14. DEMOLITIONS AND ALTERATIONS (Cont’d)

(B) Rates (Cont’d)

a) Rates shall include for:

(I) Labour, material and plant,

(II) Temporary propping or shoring incidental to the Works,

(III) Protection of adjacent buildings,

(IV) Temporary screens and protection of remaining finishing and structures,

(V) Clearing all debris from Site,

(VI) Making good finishes and structures disturbed,

(VII) Disposal of old materials by Contractor unless otherwise stated in the description,

(VIII) Removal of old materials to Agency store where these are to be retained by the Agency.

15. PARTICULAR NOTES ON PRICING AND MEASUREMENT OF PLUMBING WORK

Further to the notes included on page GI/17 of this document, the rates for sanitary fittings shall allow for all waste pipes to ground floor level only. All underground soil and waste pipes are measured separately in the internal plumbing and drainage sections.
1. **CIRCUIT BREAKERS**

   Specification Clause 2002.10.c. to be replaced as follows:

   2002.10.c Circuit breakers shall be of the bolted in type with interruption rating as given in the Bill of Quantities they shall be either three pole 380/200 volts or 190/110 volts or single pole 220 volts or 110 volts as appropriate. They shall be the quick made quick break, trip free, and trip indicating with thermal magnetic tripping mechanism (enabling non-automatic tripping) of the dust tight and waterproof type.

2. **PLASTICIZED BITUMINOUS ROOFING**

   a) The weldable plasticized bituminous roofing shall be applied in accordance with the manufacturer’s instructions.

   b) Concrete surfaces to receive the roofing finish shall be first swept clean and all sharp protrusions on the face of the concrete shall be removed and any hollows filed to the approval of the Director of Works. The concrete surface shall then receive one coat of an approved primer. The polythene protective layer shall be removed as laying is executed and the roof sheeting shall be laid adhesive side downwards onto the primed concrete surface and all air excluded. All joints shall be lapped a minimum of 100mm at sides and 150mm at ends and the laps shall be rolled to ensure a firm and continuous adhesion.

   c) Day joints or temporary stop ends shall be carefully laid to prevent moisture penetration.

   d) During laying and on completion due care shall be taken to ensure that the roofing finish is not damaged in any way, and any damaged section of the roofing shall be replaced at the Contractor’s expense to the approval of the Director of Works.

   e) Where the roof skirting is to be tucked into a groove or chase the groove or chase shall be thoroughly clean and dry, and all dust, dirt etc. shall be removed by wire brushing.

   f) Care should be taken to ensure a complete waterproof bond at roof outlets.

   g) On completion the roof shall be left sound, watertight and in a neat and clean condition before handing over, to the entire satisfaction of the Director of Works. All areas of roofing are to be water tested by the Contractor in the presence of the Director of Works.
UNITED NATIONS RELIEF AND WORKS AGENCY
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(G) PARTICULAR SPECIFICATION (Cont’d)

C. ANGLE BEADS, STOP BEADS AND LATHING

Stop beads, angle beads, movement beads and metal lathing shall be provided as indicated on the Contract Drawings, and shall be manufactured by The Expanded Metal Co. Ltd. or similar equal approved. The beads and lathing are to suit the plaster thickness and are to be fixed with galvanised nails, with each length closely butted to the next. The Contractor shall allow in his rates for plaster for providing and fixing beads and lathing.
1. **PRICING**

   a) The value of services and obligations in respect of all items in these preliminaries shall be priced for in the Bills of Quantities.

2. **CONDITIONS OF CONTRACT**

2.1 **General Conditions**

   a) The Contractor shall include for complying in all respects with the Conditions of Contract and for convenience or pricing the general headings of clause and sub clauses are set out below.

   **Article No.**
   01. Documents and Supervision
   02. Security Deposit
   03. Commencement and Completion of Work
   04. Provisional and Final Acceptance of Works
   05. Damages for delay, abandonment and cessation by Contractor
   06. Abandonment of Work by the Agency
   07. Variations
   08. Provisions of Tools and Materials
   09. Rejection of Materials and Work
   10. Conditions of Employment of Labour
   11. Measurements
   12. Payments
   13. Subcontracts
   14. Adherence by Contractor to Laws and Regulations
   15. Insurance to be maintained by the Contractor
      a) Workmen’s Compensation Insurance
      b) Public Liability Insurance
      c) Fire Insurance
   16. Removal of Rubbish
   17. Gifts and Commissions
   18. Agency’s Right to terminate Contract
   19. Notices
   20. War and Special Risks
   21. Disputes - Arbitration
3. **Special Conditions**
   (To be completed by the Director of Works as applicable)

   Insert any special conditions that may be required to be carried out for this specific project e.g.
   - **Contractor is responsible to 1) provide their own source of power (Generator)...etc.**

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4. **Scope of Works**

   a) The Works comprise the construction of
      
      **Project name e.g.; Construction / Maintenance of….etc.**
      
      Click here to enter text.
      
5. **Access to the Site**

   a) The Contractor will be responsible for maintaining the access to the Site during the course of the Contract.

6. **Level Survey**

   a) The Contractor shall execute a 5 meter grid of levels over the whole Site prior to the commencement of the Works, and again on completion, and shall prepare and submit to the Director of Works two copies of the survey drawing.

   b) The Contractor shall satisfy himself that the existing ground levels as indicated in the Contract are correct. Should the Contractor wish to dispute any levels he shall submit to the Director of Works a schedule of the position of the levels considered to be in error and a set of revised levels. The existing ground relevant to the disputed levels shall not be disturbed before the Director of Works’ decision as to the correct levels is given.

   c) The Contractor shall establish a temporary benchmark:

      i) On a permanent structure, which is structurally stable, within the vicinity of the Site.

      ii) With a steel pin set in mass concrete in a position unaffected by the Works.

      The Contractor shall protect and maintain the temporary bench marks for the duration of the Contract.
7. **Assistance and Instruments for the Director of Works**

   a). The Contractor shall provide such assistance and survey instruments during the entire duration of the Contract as may be required by the Director of Works.

8. **Water for the Works**

   a) The Contractor shall provide all necessary water for the Works by whatever means are necessary, including temporary connections, supply installation and storage tanks, and remove the whole of the temporary installation upon completion.

9. **Electricity for the Works**

   a) The Contractor shall provide all necessary electricity for the Works of whatever means are necessary, including temporary connections and supply installations, and remove the whole of the temporary installation upon completion.

10. **Bills of Quantities**

    a) The pricing of the Bills of Quantities shall be carried out in English numerals and in black ink to enable photocopying if required.

11. **Constructional Plant**

    a) The Contractor shall provide all constructional plant required for the proper execution and completion of the Works and shall remove it from the Site upon completion.

12. **Temporary Scaffolding**

    a) The Contractor shall provide all necessary temporary scaffolding for the proper execution of the Works.

13. **Tests**

    a) The Contractor shall allow for carrying out all tests required by the Specification, including all necessary materials and samples for testing.
13. **Tests (Cont’d)**

b) The Director of Works may require any test that he deems necessary to satisfy himself that the materials are in accordance with the Contract Documents. The cost of making tests, except for those required by the Specification, will be borne by the Agency except where, in the opinion of the Director of Works, the results of the tests indicate that the materials and/or workmanship are not of the standard required by the Contract Documents, in which case the cost of such tests shall be borne by the Contractor.

14. **Samples of Materials and Workmanship**

a) The Contractor shall allow for providing at his own expense and submit to the Director of Works, for his approval, as he may require, samples for all specified materials which he proposes to incorporate into the Works.

b) The approved samples shall remain in the custody of the Director of Works and all subsequent work and materials shall be equal to the approved samples in every respect.

c) Approved samples shall be returned to the Contractor upon completion of the Works.

15. **Care of the Works**

a) The Contractor shall be responsible for the care of the Works until their provisional acceptance by the Agency including all work executed and all materials on Site.

b) The Contractor shall protect the Works and materials on the Site from risks arising from the weather, carelessness of operators, damage or loss by theft, lightning, flood or other causes.

c) The provision of stores, temporary accommodation and fencing, lighting and other protective measures shall be at the expense of the Contractor.

d) The Contractor shall reimburse the Agency for any loss or damage, from whatsoever cause arising, to the work and materials.
16. **Setting Out**

a) The Contractor shall allow for establishing the necessary datums and levels at the commencement of the Works and shall set out the principle axes, corners, partitions, intersections and the like to the approval of the Director of Works. The approval of the Director of Works shall not relieve the Contractor of his responsibility for the accuracy of the setting out.

b) The establishment of datums and levels, the initial and subsequent setting out, and the correction of lines and levels necessitated by the destruction or removal of pegs or marks, shall be carried out at the expense of the Contractor.

17. **Privately and Publicly Owned Services**

a) If any privately owned service for water, electricity, drainage etc. passing through the Site is affected by the Works then the Contractor shall locate it and provide a satisfactory alternative service before cutting the existing service.

b) The position of Public Authority main services shall be verified by the Contractor who must satisfy himself as to the exact position of such facilities and make allowance in his price for compliance with this clause. The Contractor shall take all measures required by any Public Authority for the support and full protection of the pipes, cables and other installations during the progress of the Works.

18. **Traffic Safety**

a) The Contractor shall provide, erect and maintain such traffic signs, lamps, barriers, traffic control signals and such other measures as may be necessitated by the construction of the Works to the satisfaction of the Local Authority and the Director of Works.

b) The Contractor shall not commence any work which affects public roads until all traffic safety measures necessitated by the work or required by the Local Authority are fully operational.

c) The Contractor shall keep clean and legible at the times all traffic signs, lamps, barriers and traffic control signals and he shall position, reposition, cover or remove them as necessitated by the progress of the Works.
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UNITED NATIONS RELIEF AND WORKS AGENCY
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(H) PRELIMINARIES (Cont’d)

18. Traffic Safety (Cont’d)
   d) The Contractor shall be responsible for maintaining and repairing any Public Highway damaged as a result of the execution of the Works.

19. Temporary Diversion of Traffic
   a) The Contractor shall construct temporary diversion ways wherever the Works will interfere with existing public or private roads or other ways over which there is a public or private right of way for any traffic.
   b) The standard of construction and lighting shall be suitable in all respects for the class or classes of traffic using the existing way and the width of the diversion shall be not less than that of the existing way unless otherwise described in the Contract.
   c) Diversion ways must be constructed in advance of any interference with the existing ways and shall be maintained to provide adequately for the traffic flows.
   d) The provisions of this Clause shall not apply to any temporary access or accommodation works which the Contractor may construct for his sole use in the execution of the Works.

20. Progress Schedule
   a) The Contractor shall submit to the Director of Works for his approval a Progress Schedule within one week of the signing of the Contract.
   b) The Progress Schedule shall show the sequence of the Works and the dates by which the Contractor proposes to complete the various phases of the Work.
   c) One copy of the Progress Schedule shall be kept on Site at all times and the actual progress of the various phases of the work shall be entered thereon at intervals of not more than seven (7) days.
   d) No changes shall be made to the Progress Schedule without the written approval of the Director of Works.
(H) PRELIMINARIES (Cont’d)

21. **Site Offices, Stores and Other Facilities for the Contractor**

   a) The Contractor shall provide, erect and maintain, at his own expense all necessary temporary Site offices, stores and other temporary facilities as may be required by the Contract or for his own use including all associated electricity, water, furniture, equipment etc.

   b) The Contractor shall provide a watertight cement store of approved capacity with the floor 15cm above existing ground level, to the approval of the Director of Works.

   c) The Contractor shall provide and keep in good repair one slump cone and one 30m tape for testing materials and workmanship.

22. **Offices for the Director of Works**

   a) The Contractor shall provide adequate office space for the use of the Director of Works, or his authorized representative within two weeks of the Date of Commencement of the Works, in accordance with the following:

      i. Minimum area of 16 square meters.

      ii. The office shall be furnished with one desk with a lockable drawer, a desk chair, and a separate table with six chairs for meetings, and lockable cupboards, together with all other furniture reasonably requested by the Director of Works.

      iii. All utilities (water, electricity, sewers) including maintenance.

      iv. The office shall have adequate temperature for work (i.e. be heated during winter months and cooled during summer months).

      v. Bottled drinking water and refreshments (tea and coffee).

      vi. Secure locks for the doors and windows with security bars for windows.

      vii. Office boy for maintenance and daily cleaning.
b) A separate toilet facility shall be provided for the sole use of the Director of Works and his representatives. The Contractor shall allow for keeping the facilities clean. The Contractor shall provide in his Bid Price for any costs resulting from this Article.

23. **Yard Book**
   a) The Contractor shall provide and maintain a yard book (manifold), to record all Site decisions, events, progress and comments. This shall be kept on Site at all times and available for the inspection of the Director of Works, or his authorized representative. The yard book shall be signed every day by the Director of Works and countersigned by the Contractor.

24. **Materials Supplied by the Agency**
   a) The Contractor shall provide for loading, unloading, transporting, handling, storing, unpacking, protecting, safeguarding, controlling and installing all materials supplied by the Agency in accordance with Article 8 of the Building Contract.

25. **Contractor’s Engineer**
   a) The Contractor shall provide all Site Supervising staff required for the proper execution and completion of the Works.

26. **Site Clearance Removal of Rubbish and Cleaning the Works**
   a) The Contractor shall, upon provisional Acceptance of the Works, demolish all temporary works and buildings and clear away all rubbish and debris from the Site.
   b) The Contractor shall, immediately prior to handing over the building, clean all parts of the building and external works and deliver up the whole in a prefect state according to the intent and meaning of the Contract and to the satisfaction of the Director of Works.
   c) The Contractor shall, during the course of the Contract, remove Site refuse from time to time as it accumulates, or as instructed by the Director of Work, and shall maintain the Works and the Site in a clean and tidy condition at all times.
27. **Other Costs**

a) The Contractor shall allow for all other costs, expenses etc., which he considers are necessary for the proper execution of the Works and which are not already included in this Contract Document, otherwise details of which must be set out below. All such costs and expenses not entered below will be deemed to be included in the prices inserted elsewhere in the Bills of Quantities.

b) The Contractor shall take photos of the Works covering all work stages and submit one hard and one soft copy of the photos to the Director of Works on a monthly basis.

c) The Contractor shall submit one hard and one soft copy of As-built drawings to the Director of Works, together with the request for the final payment.

d) The Contractor shall design, erect and maintain, at his own expense, a temporary rigid and stable construction fence, with height sufficient to provide safety and security measures, as the first work activity on the Site. This fence shall not relieve the Contractor of any of his responsibilities and liabilities as stated by this Contract.

28. **Signboard**

a) The Contractor shall provide a temporary signboard, size 3mx2m to the approval of the Director of Works, on which will be indicated the Name of the Project, the Agency, the name of the Contractors and the Donor for the Project.
1. **PRICING**
   
a) The Contractor shall not be entitled to additional allowance for carrying out these tests as it should be understood that the cost will have already been allowed for in the Contract’s Unit Rate.

2. **CONDITIONS OF CONTRACT**

   2.1 **General Conditions**
   
   Materials failing to comply with the specified tests shall be removed from the Site and substituted with proper materials. The replacement materials shall also be subject to testing according to the discretion of the Director of Works and all additional testing costs shall be borne by the Contractor.

   a) Test results should comply with Local Standards in the Country where the Project is executed in addition to the following Standards: AASHTO T27, T89, T90; ASTM C156, C39-C86, C116-90, C97, D1556-90, D1557-90, D3282-88, D1559, D3549-77; BS 4131-73 Part B, BS 4131-73 Part A, BS 7263 Part 1:1990, BS 340.

   2.2 **Special Conditions**
   
   (To be completed by the Director of Works as applicable)

   **Insert any requirements/e.g. tests to be carried out by the Contractor**

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3. **List of TESTS to be carried out for all Construction Projects (Where Applicable). The Decision on the applicability of such tests on any particular project is left to the judgment of the Director of Works.**

   3.1 **Earthworks:**

   a) Examination of Fill Material for compliance with specifications.
   b) Field Density test.

   3.2 **Concrete Works:**

   a) Mix Design.
   b) Slump test.
   c) Cube/Cylinder Compressive Strength test.

   3.3 **Reinforcing Steel:**

   a) Steel tensile test.
   b) Visual test of steel for rust, straightness, suitability for use; including measuring the diameter with a precision caliper.
QUALITY CONTROL TESTS (Cont’d)

3.4 Mechanical Works:
   a) Water Network pressure test.
   b) Gas Network pressure test.
   c) Drainage Network leakage test.
   d) Equipment test: (i) Contractor should provide evidence that the equipment has passed the manufacturer’s Quality Control tests.
      (ii) Includes all requirements specified in Contract Documents such as {Add-on’s, connecting parts…etc.}.
   e) PVC pipes: Pressure and thickness test or a certificate of compliance with local standards.

3.5 Electrical Works:
   a) Electrical resistance of earthing: For power sockets equal or less than 2 ohms, for computer sockets equal or less than 0.5 ohms.
   b) Continuity test: connection of cables according to local standard.
   c) Insulation resistance test or a certificate of compliance with local standards.
   d) Equipment test: (i) Contractor should provide evidence that the equipment has passed the manufacturer’s Quality Control tests.
      (ii) Includes all requirements specified in Contract Documents such as {Add-on’s, connecting parts…etc.}.
   e) Electrical PVC Conduits: Type and thickness to comply with local standards.

3.6 Concrete Blocks:
   a) Compressive Strength test.

3.7 Tiling Works:
   a) Transverse (Crushing) test.
   b) Abrasion test: results should comply with local standards.
   c) Water Absorption test.
   d) Surface thickness test: White cement part.

3.8 Asphalt Mix:
   a) Asphalt Content test.
   b) Compaction test.
   c) Thickness test.

3.9 Concrete Curb Stones:
   a) Compressive Strength test.

3.10 Painting:
   a) Paint analysis test or a certificate of compliance with local standards.
GENERAL CONDITIONS OF CONTRACT
FOR THE PROVISION OF SERVICES ONLY

1. EFFECTIVE DATE: This Contract shall be effective when signed by the Parties. The Contract constitutes a contract between the Parties, the rights and obligations of which shall be governed solely by the terms and conditions of the Contract, including these General Conditions.

2. LEGAL STATUS OF THE PARTIES: UNRWA and the Contractor shall also each be referred to as a ‘Party’ hereunder, and:
   2.1 Pursuant, inter alia, to the Charter of the United Nations and the Convention on the Privileges and Immunities of the United Nations, the United Nations, including its subsidiary organs (including UNRWA) has full juridical personality and enjoys such privileges and immunities as are necessary for the independent fulfillment of its purposes.
   2.2 The Contractor shall have the legal status of an independent contractor vis-à-vis UNRWA, and nothing contained in or relating to the Contract shall be construed as establishing or creating between the Parties the relationship of employer and employee or of principal and agent. The officials, representatives, employees, or subcontractors of each of the Parties shall not be considered in any respect as being the employees or agents of the other Party, and each Party shall be solely responsible for all claims arising out of or relating to its engagement of such persons or entities.

3. SOURCE OF INSTRUCTIONS: The Contractor shall neither seek nor accept instructions from any authority external to UNRWA in connection with the performance of its obligations under the Contract. Should any authority external to UNRWA seek to impose any instructions concerning or restrictions on the Contractor’s performance under the Contract, the Contractor shall promptly notify UNRWA and provide all reasonable assistance required by UNRWA. The Contractor shall not take any action in respect of the performance of its obligations under the Contract that may adversely affect the interests of UNRWA, and the Contractor shall perform its obligations under the Contract with the fullest regard to the interests of UNRWA.

4. RESPONSIBILITY FOR EMPLOYEES: To the extent that the Contract involves the provision of any services to UNRWA by the Contractor’s officials, employees, agents, servants, subcontractors and other representatives (collectively, the Contractor’s “personnel”), the following provisions shall apply:
   4.1 The services shall be delivered in a professional and workmanlike manner in accordance with the terms and conditions of this Contract. The Contractor shall conduct its operations with due diligence and efficiency, in accordance with sound technical, financial and managerial standards and practices.
   4.2 The Contractor shall be responsible for the professional and technical competence of the personnel it assigns to perform work under the Contract and will select reliable and competent individuals who will be able to effectively perform the obligations under the Contract and who, while doing so, will respect the local laws and customs and conform to a high standard of moral and ethical conduct.
   4.3 Such Contractor personnel shall be professionally qualified and, if required to work with officials or staff of UNRWA, shall be able to do so effectively. The qualifications of any personnel whom the Contractor may assign or may propose to assign to perform any obligations under the Contract shall be substantially the same, or better, as the qualifications of any personnel originally proposed by the Contractor.
   4.4 At the option of and in the sole discretion of UNRWA:
      4.4.1 the qualifications of personnel proposed by the Contractor (e.g., a curriculum vitae) may be reviewed by UNRWA prior to such personnel’s performing any obligations under the Contract;
      4.4.2 any personnel proposed by the Contractor to perform obligations under the Contract may be interviewed by qualified staff or officials of UNRWA prior to such personnel’s performing any obligations under the Contract; and,
      4.4.3 in cases in which, pursuant to Article 4.4.1 or 4.4.2, above, UNRWA has reviewed the qualifications of such Contractor’s personnel, UNRWA may reasonably refuse to accept any such personnel.
   4.5 Requirements specified in the Contract regarding the number or qualifications of the Contractor’s personnel may change during the course of performance of the Contract. Any such change shall be made only following written notice of such proposed change and upon written agreement between the Parties regarding such change, subject to the following:
      4.5.1 UNRWA may, at any time, request, in writing, the withdrawal or replacement of any of the Contractor’s personnel, and such request shall not be unreasonably refused by the Contractor.
      4.5.2 Any of the Contractor’s personnel assigned to perform obligations under the Contract shall not be withdrawn or replaced without the prior written consent of UNRWA, which shall not be unreasonably withheld.
      4.5.3 The withdrawal or replacement of the Contractor’s personnel shall be carried out as quickly as possible and in a manner that will not adversely affect the performance of obligations under the Contract.
4.5.4 All expenses related to the withdrawal or replacement of the Contractor’s personnel shall, in all cases, be borne exclusively by the Contractor.

4.5.5 Any request by UNRWA for the withdrawal or replacement of the Contractor’s personnel shall not be considered to be a termination, in whole or in part, of the Contract, and UNRWA shall not bear any liability in respect of such withdrawn or replaced personnel.

4.5.6 If a request for the withdrawal or replacement of the Contractor’s personnel is not based upon a default by or failure on the part of the Contractor to perform its obligations in accordance with the Contract, the misconduct of the personnel, or the inability of such personnel to reasonably work together with UNRWA officials and staff, then the Contractor shall not be liable by reason of any such request for the withdrawal or replacement of the Contractor’s personnel for any delay in the performance by the Contractor of its obligations under the Contract that is substantially the result of such personnel’s being withdrawn or replaced.

4.6 Nothing in Articles 4.3, 4.4 and 4.5, above, shall be construed to create any obligations on the part of UNRWA with respect to the Contractor’s personnel assigned to perform work under the Contract, and such personnel shall remain the sole responsibility of the Contractor.

4.7 The Contractor shall be responsible for requiring that all personnel assigned by it to perform any obligations under the Contract and who may have access to any premises or other property of UNRWA shall:

4.7.1 undergo or comply with security screening requirements made known to the Contractor by UNRWA, including but not limited to, a review of any criminal history;

4.7.2 when within UNRWA premises or on UNRWA property, display such identification as may be approved and furnished by UNRWA security officials, and that upon the withdrawal or replacement of any such personnel or upon termination or completion of the Contract, such personnel shall immediately return any such identification to UNRWA for cancellation.

4.8 Not less than one working day after learning that any of Contractor’s personnel who have access to any UNRWA premises have been charged by law enforcement authorities with an offense other than a minor traffic offense, the Contractor shall provide written notice to inform UNRWA about the particulars of the charges then known and shall continue to inform UNRWA concerning all substantial developments regarding the disposition of such charges.

4.9 All operations of the Contractor, including without limitation, storage of equipment, materials, supplies and parts, within UNRWA premises or on UNRWA property shall be confined to areas authorized or approved by UNRWA. The Contractor’s personnel shall not enter or pass through and shall not store or dispose of any of its equipment or materials in any areas within UNRWA premises or on UNRWA property without appropriate authorization from UNRWA.

5. ASSIGNMENT; SUBCONTRACTING:

5.1 Except as provided in Article 5.2, below, the Contractor may not assign, transfer, pledge, subcontract or make any other disposition of the Contract, of any part of the Contract, or of any of the rights, claims or obligations under the Contract except with the prior written authorization of UNRWA. Any such unauthorized assignment, transfer, pledge, subcontracting or other disposition, or any attempt to do so, shall not be binding on UNRWA. Except as permitted with respect to any approved subcontractors, the Contractor shall not delegate any of its obligations under the Contract, except with the prior written consent of UNRWA. Any such unauthorized delegation, or attempt to do so, shall not be binding on UNRWA.

5.2 The Contractor may assign or otherwise transfer the Contract to the surviving entity resulting from a reorganization of the Contractor’s operations, provided that:

5.2.1 such reorganization is not the result of any bankruptcy, receivership or other similar proceedings; and,

5.2.2 such reorganization arises from a sale, merger, or acquisition of all or substantially all of the Contractor’s assets or ownership interests; and,

5.2.3 the Contractor promptly notifies UNRWA about such assignment or transfer at the earliest opportunity; and,

5.2.4 the assignee or transferee agrees in writing to be bound by all of the terms and conditions of the Contract, and such writing is promptly provided to UNRWA following the assignment or transfer.

6. INDEMNIFICATION:

6.1 The Contractor shall indemnify, defend, and hold save harmless, UNRWA, and its officials, agents and employees, from and against all suits, proceedings, claims, demands, losses and liability of any kind or nature brought by any third party against UNRWA, including, but not limited to, all litigation costs and expenses, attorney’s fees, settlement payments and damages, based on, arising from, or relating to:

6.1.1 allegations or claims that the possession of or use by UNRWA of any patented device, any copyrighted material, or any other goods, property or services provided or licensed to UNRWA under the terms of the Contract, in whole or in part, separately or in a combination contemplated by the Contractor’s published specifications therefor, or otherwise specifically
approved by the Contractor, constitutes an infringement of any patent, copyright, trademark, or other intellectual property right of any third party; or,

6.1.2 any acts or omissions of the Contractor, or of any subcontractor or anyone directly or indirectly employed by them in the performance of the Contract, which give rise to legal liability to anyone not a party to the Contract, including, without limitation, claims and liability in the nature of a claim for workers’ compensation.

6.2 In addition to the indemnity obligations set forth in this Article 6, the Contractor shall be obligated, at its sole expense, to defend UNRWA and its officials, agents and employees, pursuant to this Article 6, regardless of whether the suits, proceedings, claims and demands in question actually give rise to or otherwise result in any loss or liability.

6.3 UNRWA shall advise the Contractor about any such suits, proceedings, claims, demands, losses or liability within a reasonable period of time after having received actual notice thereof. The Contractor shall have sole control of the defense of any such suit, proceeding, claim or demand and of all negotiations in connection with the settlement or compromise thereof, except with respect to the assertion or defense of the privileges and immunities of UNRWA or any matter relating thereto, for which only UNRWA itself is authorized to assert and maintain. UNRWA shall have the right, at its own expense, to be represented in any such suit, proceeding, claim or demand by independent counsel of its own choosing.

6.4 In the event the use by UNRWA of any goods, property or services provided or licensed to UNRWA by the Contractor, in whole or in part, in any suit or proceeding, is for any reason enjoined, temporarily or permanently, or is found to infringe any patent, copyright, trademark or other intellectual property right, or in the event of a settlement, is enjoined, limited or otherwise interfered with, then the Contractor, at its sole cost and expense, shall, promptly, either:

6.4.1 procure for UNRWA the unrestricted right to continue using such goods or services provided to UNRWA; or,

6.4.2 replace or modify the goods or services provided to UNRWA, or part thereof, with the equivalent or better goods or services, or part thereof, that is non-infringing; or,

6.4.3 refund to UNRWA the full price paid by UNRWA for the right to have or use such goods, property or services, or part thereof.

7. INSURANCE AND LIABILITY:

7.1 The Contractor shall pay UNRWA promptly for all loss, destruction, or damage to the property of UNRWA caused by the Contractor’s personnel or by any of its subcontractors or anyone else directly or indirectly employed by the Contractor or any of its subcontractors in the performance of the Contract.

7.2 Unless otherwise provided in the Contract, prior to commencement of performance of any other obligations under the Contract, and subject to any limits set forth in the Contract, the Contractor shall take out and shall maintain for the entire term of the Contract, for any extension thereof, and for a period following any termination of the Contract reasonably adequate to deal with losses:

7.2.1 insurance against all risks in respect of its property and any equipment used for the performance of the Contract; and,

7.2.2 workers’ compensation insurance, or its equivalent, or employer’s liability insurance, or its equivalent, with respect to the Contractor’s personnel sufficient to cover all claims for injury, death and disability, or any other benefits required to be paid by law, in connection with the performance of the Contract; and,

7.2.3 liability insurance in an adequate amount to cover all claims, including, but not limited to, claims for death and bodily injury, products and completed operations liability, loss of or damage to property, and personal and advertising injury, arising from or in connection with the Contractor’s performance under the Contract, including, but not limited to, liability arising out of or in connection with the acts or omissions of the Contractor, its personnel, agents, or invitees, or the use, during the performance of the Contract, of any vehicles, boats, airplanes or other transportation vehicles and equipment, whether or not owned by the Contractor; and,

7.2.4 such other insurance as may be agreed upon in writing between UNRWA and the Contractor.

7.3 The Contractor’s liability policies shall also cover subcontractors and all defense costs and shall contain a standard “cross liability” clause.

7.4 The Contractor acknowledges and agrees that UNRWA accepts no responsibility for providing life, health, accident, travel or any other insurance coverage which may be necessary or desirable in respect of any personnel performing services for the Contractor in connection with the Contract.

7.5 Except for the workers’ compensation insurance or any self-insurance program maintained by the Contractor and approved by UNRWA, in its sole discretion, for purposes of fulfilling the Contractor’s requirements for providing insurance under the Contract, the insurance policies required under the Contract shall:

7.5.1 name UNRWA as an additional insured under the liability policies, including, if required, as a separate endorsement under the policy; and,
7.5.2 include a waiver of subrogation of the Contractor’s insurance carrier’s rights against UNRWA; and,

7.5.3 provide that UNRWA shall receive written notice from the Contractor’s insurance carrier not less than thirty (30) days prior to any cancellation or material change of coverage; and,

7.5.4 include a provision for response on a primary and non-contributing basis with respect to any other insurance that may be available to UNRWA.

7.6 The Contractor shall be responsible to fund all amounts within any policy deductible or retention.

7.7 Except for any self-insurance program maintained by the Contractor and approved by UNRWA for purposes of fulfilling the Contractor’s requirements for maintaining insurance under the Contract, the Contractor shall maintain the insurance taken out under the Contract with reputable insurers that are in good financial standing and that are acceptable to UNRWA. Prior to the commencement of any obligations under the Contract, the Contractor shall provide UNRWA with evidence, in the form of certificate of insurance or such other form as UNRWA may reasonably require, that demonstrates that the Contractor has taken out insurance in accordance with the requirements of the Contract. UNRWA reserves the right, upon written notice to the Contractor, to obtain copies of any insurance policies or insurance program descriptions required to be maintained by the Contractor under the Contract. Notwithstanding the provisions of Article 7.5.3, above, the Contractor shall promptly notify UNRWA concerning any cancellation or material change of insurance coverage required under the Contract.

7.8 The Contractor acknowledges and agrees that neither the requirement for taking out and maintaining insurance as set forth in the Contract nor the amount of any such insurance, including, but not limited to, any deductible or retention relating thereto, shall in any way be construed as limiting the Contractor’s liability arising under or relating to the Contract.

8. ENCUMBRANCES AND LIENS: The Contractor shall not cause or permit any lien, attachment or other encumbrance by any person to be placed on file or to remain on file in any public office or on file with UNRWA against any monies due to the Contractor or that may become due for any work done or against any goods supplied or materials furnished under the Contract, or by reason of any other claim or demand against the Contractor or UNRWA.

9. EQUIPMENT FURNISHED BY UNRWA TO THE CONTRACTOR: Title to any equipment and supplies that may be furnished by UNRWA to the Contractor for the performance of any obligations under the Contract shall rest with UNRWA, and any such equipment shall be returned to UNRWA at the conclusion of the Contract or when no longer needed by the Contractor. Such equipment, when returned to UNRWA, shall be in the same condition as when delivered to the Contractor, subject to normal wear and tear, and the Contractor shall be liable to compensate UNRWA for the actual costs of any loss of, damage to, or degradation of the equipment that is beyond normal wear and tear.

10. COPYRIGHT, PATENTS AND OTHER PROPRIETARY RIGHTS:

10.1 Except as is otherwise expressly provided in writing in the Contract, all right, title and interest, including copyrights, in all works and other materials, whether in written or electronic form and including all derivative works thereof, produced in the performance of this Contract shall be vested exclusively in, and the Contractor shall without further consideration assign, whether as works for hire or otherwise, the same to, UNRWA.

10.2 To the extent that any such intellectual property or other proprietary rights consist of any intellectual property or other proprietary rights of the Contractor:
   (i) that pre-existed the performance by the Contractor of its obligations under the Contract, or
   (ii) that the Contractor may develop or acquire, or may have developed or acquired, independently of the performance of its obligations under the Contract, UNRWA does not and shall not claim any ownership interest thereto, and the Contractor grants to UNRWA a perpetual license to use such intellectual property or other proprietary right solely for the purposes of and in accordance with the requirements of the Contract.

10.3 At the request of UNRWA, the Contractor shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring or licensing them to UNRWA in compliance with the requirements of the applicable law and of the Contract.

10.4 Subject to the foregoing provisions, all maps, drawings, photographs, mosaics, plans, reports, estimates, recommendations, documents, and all other data compiled by or received by the Contractor under the Contract shall be the property of UNRWA, shall be made available for use or inspection by UNRWA at reasonable times and in reasonable places, shall be treated as confidential, and shall be delivered only to UNRWA authorized officials on completion of work under the Contract.

11. PUBLICITY, AND USE OF THE NAME, EMBLEM OR OFFICIAL SEAL OF THE UNITED NATIONS OR UNRWA: The Contractor shall not advertise or otherwise make public for purposes of commercial advantage or goodwill that it has a contractual relationship with UNRWA, nor shall the Contractor, in any manner whatsoever use the name, emblem or official seal of the United Nations or UNRWA, or any abbreviation of the name of the United Nations or UNRWA in connection with its business or otherwise without the written permission of UNRWA.

12. CONFIDENTIAL NATURE OF DOCUMENTS AND INFORMATION: Information and data that is considered proprietary by either Party or that is delivered or disclosed...
13. FORCE MAJEURE; OTHER CHANGES IN CONDITIONS:

13.1 In the event of and as soon as possible after the occurrence of any cause constituting force majeure, the affected Party shall give notice and full particulars in writing to the other Party, of such occurrence or cause if the affected Party is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under the Contract. The affected Party shall also notify the other Party of any other changes in condition or the occurrence of any event which interferes or threatens to interfere with its performance of the Contract. Not more than fifteen (15) days following the provision of such notice of force majeure or other changes in condition or occurrence, the affected Party shall also submit a statement to the other Party of estimated expenditures that will likely be incurred for the duration of the change in condition or the event of force majeure. On receipt of the notice or notices required hereunder, the Party not affected by the occurrence of a cause constituting force majeure shall take such action as it reasonably considers to be appropriate or necessary in the circumstances, including the granting to the affected Party of a reasonable extension of time in which to perform any obligations under the Contract.

13.2 If the Contractor is rendered unable, wholly or in part, by reason of force majeure to perform its obligations and meet its responsibilities under the Contract, UNRWA shall have the right to suspend or terminate the Contract on the same terms and conditions as are provided for in Article 14, “Termination,” except that the period of notice shall be seven (7) days instead of thirty (30) days. In any case, UNRWA shall be entitled to consider the Contractor permanently unable to perform its obligations under the Contract in case the Contractor is unable to perform its obligations, wholly or in part, by reason of force majeure for any period in excess of ninety (90) days.

13.3 Force majeure as used herein means any unforeseeable and irresistible act of nature, any act of war (whether declared or not), invasion, revolution, insurrection, terrorism, or any other acts of a similar nature or force, provided that such acts arise from causes beyond the control and without the fault or negligence of the Contractor. The Contractor acknowledges and agrees that, with respect to any obligations under the Contract that the Contractor must perform in areas in which UNRWA is engaged in, preparing to engage in, or disengaging from any operations, any delays or failure to perform such obligations arising from or relating to harsh conditions within such areas, including without limitation closures, strikes and curfews, or to any incidents of civil unrest occurring in such areas, shall not, in and of itself, constitute force majeure under the Contract.

14. TERMINATION:

14.1 Either Party may terminate the Contract for cause, in whole or in part, upon thirty (30) day’s notice, in writing, to the other Party. The initiation of conciliation or arbitral proceedings in accordance with Article 17 “Settlement of Disputes,” below, shall not be deemed to be a “cause” for or otherwise to be in itself a termination of the Contract.

14.2 UNRWA may terminate the Contract at any time by providing written notice to the Contractor in any case in which the mandate of UNRWA applicable to the performance of the Contract or the funding of UNRWA applicable to the Contract is curtailed or terminated, whether in whole or in part. In addition, unless otherwise provided by the Contract, upon sixty (60) day’s advance written notice to the
14.4 In the event of any termination of the Contract, UNRWA shall be entitled to obtain reasonable written accountings from the Contractor concerning all obligations performed or pending in accordance with the Contract. In addition, UNRWA shall not be liable to pay the Contractor except for, but without prejudice to UNRWA’s rights under Article 15, those goods delivered and services provided to UNRWA in accordance with the requirements of the Contract, but only if such goods or services were ordered, requested or otherwise provided prior to the Contractor’s receipt of notice of termination from UNRWA or prior to the Contractor’s awarding of notice of termination to UNRWA.

14.5 UNRWA may, without prejudice to any other right or remedy available to it, terminate the Contract forthwith in the event that:

14.5.1 the Contractor is adjudged bankrupt, or is liquidated, or becomes insolvent, or applies for a moratorium or stay on any payment or repayment obligations, or applies to be declared insolvent;

14.5.2 the Contractor is granted a moratorium or a stay, or is declared insolvent;

14.5.3 the Contractor makes an assignment for the benefit of one or more of its creditors;

14.5.4 a Receiver is appointed on account of the insolvency of the Contractor;

14.5.5 a Receiver is appointed on account of the insolvency of the Contractor;

14.5.6 UNRWA reasonably determines that the Contractor has become subject to a materially adverse change in its financial condition that threatens to substantially affect the ability of the Contractor to perform any of its obligations under the Contract.

14.6 Except as prohibited by law, the Contractor shall be bound to compensate UNRWA for all damages and costs, including, but not limited to, all costs incurred by UNRWA in any legal or non-legal proceedings, as a result of any of the events specified in Article 14.5, above, and resulting from or relating to a termination of the Contract, even if the Contractor is adjudged bankrupt, or is granted a moratorium or stay or is declared insolvent. The Contractor shall immediately inform UNRWA of the occurrence of any of the events specified in Article 14.5, above, and shall provide UNRWA with any information pertinent thereto.

14.7 The provisions of this Article 14 are without prejudice to any other rights or remedies of UNRWA under the Contract or otherwise.

15. REMEDIES OF UNRWA; NON-WAIVER OF RIGHTS:

15.1 In the event the Contractor fails to comply with any term of the Contract, the Contractor shall be liable for all damages sustained by UNRWA, and UNRWA may, after giving the Contractor reasonable notice to perform and without prejudice to any other rights or remedies, exercise one or more of the following rights:

15.1.1 procure all or part of the service or related goods from other sources;

15.1.2 refuse to accept delivery of all or part of the services or related goods; or
15.1.3 terminate the Contract in accordance with Article 14.1,

and the Contractor shall be liable by reason of default for any loss or damage sustained and additional costs incurred by UNRWA, including without limitation any increase in the price payable by UNRWA resulting from the procurement of the services from other sources and the costs of engaging in such procurement. UNRWA may, without notice to the Contractor, apply to the payment of any such loss, damage or additional costs, by setoff or otherwise, all credits, claims or other amounts, whether or not related to the Contract, at any time owing by UNRWA to the Contractor.

15.2 If the Contractor fails to complete the services within the time for delivery specified in the Contract, UNRWA may, in its sole discretion and without prejudice to its other remedies under the Contract, deduct from the contract price the amount set forth in the Contract for each calendar day of delay until actual delivery which amount shall in no event be less than one percent of the [delivered price of the delayed services], up to a maximum deduction of ten percent of the contract price.

15.3 The failure by either Party to exercise any rights available to it, whether under the Contract or otherwise, shall not be deemed for any purposes to constitute a waiver by the other Party of any such right or any remedy associated therewith, and shall not relieve the Parties of any of their obligations under the Contract. All remedies afforded in the Contract shall be taken and construed as cumulative, i.e., in addition to every other remedy provided under the Contract and by law.

16. NON-EXCLUSIVITY: Unless otherwise specified in the Contract, UNRWA shall have no obligation to purchase any minimum quantities of goods or services from the Contractor, and UNRWA shall have no limitation on its right to obtain goods or services of the same kind, quality and quantity described in the Contract, from any other source at any time.

17. SETTLEMENT OF DISPUTES:

17.1 AMICABLE SETTLEMENT: The Parties shall use their best efforts to amicably settle any dispute, controversy, or claim arising out of the Contract or the breach, termination, or invalidity thereof, unless settled amicably under Article 17.1 above within sixty (60) days after receipt by one Party of the other Party’s written request for conciliation or mediation, shall be settled by arbitration in accordance with the Permanent Court of Arbitration Optional Rules for Arbitration between International Organizations and Private Parties in force on the date of this Contract (the “PCA Arbitration Rules”). The decisions of the arbitral tribunal shall be based on general principles of international commercial law. The appointing authority shall be designated by the Secretary-General of the Permanent Court of Arbitration following a written request submitted by either Party. The number of arbitrators shall be three, unless the Parties, in the interest of economy of proceedings, agree that there shall be one arbitrator. The place of arbitration shall be Amman, Jordan. The language to be used in the arbitral proceedings shall be English. The arbitrators must be fluent in that language. The arbitral tribunal shall be empowered to take any measures it deems appropriate, including without limitation, ordering the return or destruction of goods or any property, whether tangible or intangible, or of any confidential information provided under the Contract, ordering the termination of the Contract, or ordering that any other protective measures be taken with respect to the goods, services or any other property, whether tangible or intangible, or of any confidential information provided under the Contract, as appropriate, all in accordance with the authority of the arbitral tribunal pursuant to the PCA Arbitration Rules. The arbitral tribunal shall have no authority to award punitive damages. In addition, unless otherwise expressly provided in the Contract, the arbitral tribunal shall have no authority to award interest in excess of the London Inter-Bank Offered Rate (“LIBOR”) then prevailing, and any such interest shall be simple interest only. The Parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such dispute, controversy, or claim.

18. PRIVILEGES AND IMMUNITIES: Nothing in or relating to the Contract shall be deemed a waiver, express or implied, of any of the privileges and immunities accorded to UNRWA in international law.

19. TAX EXEMPTION:

19.1 Article II, Section 7, of the Convention on the Privileges and Immunities of the United Nations provides, inter alia, that the United Nations, including its subsidiary organs (including UNRWA), is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties, and charges of a similar nature in respect of articles imported or exported for its official use. In the event any governmental authority refuses to recognize the exemptions of UNRWA from such taxes, restrictions, duties, or charges, the Contractor
shall immediately consult with UNRWA to determine a mutually acceptable procedure.

19.2 The Contractor authorizes UNRWA to deduct from the Contractor’s invoices any amount representing such taxes, duties or charges, unless the Contractor has consulted with UNRWA before the payment thereof and UNRWA has, in each instance, specifically authorized the Contractor to pay such taxes, duties, or charges under written protest. In that event, the Contractor shall provide UNRWA with written evidence that payment of such taxes, duties or charges has been made and appropriately authorized, and UNRWA shall reimburse the Contractor for any such taxes, duties, or charges so authorized by UNRWA and paid by the Contractor under written protest.

20. OBSERVANCE OF THE LAW: The Contractor shall comply with all laws, ordinances, rules, and regulations bearing upon the performance of its obligations under the Contract. In addition, the Contractor shall maintain compliance with all obligations relating to its registration as a qualified vendor of goods or services to UNRWA, as such obligations are set forth in UNRWA vendor registration procedures.

21. MODIFICATIONS:

21.1 Only the Chief, Procurement and Logistics Division, or, for local contracts, the Field Office Director in each of UNRWA’s fields of operation, or such other contracting authority as UNRWA has made known to the Contractor in writing, possesses the authority to agree on behalf of UNRWA to any modification of or change in the Contract, to a waiver of any of its provisions or to any additional contractual relationship of any kind with the Contractor. Accordingly, no modification or change in the Contract shall be valid and enforceable against UNRWA unless provided by a valid written amendment to the Contract signed by the Contractor and the Chief, Procurement and Logistics Division, or the Field Office Director (for local contracts), or such other contracting authority.

21.2 If the Contract shall be extended for additional periods in accordance with the terms and conditions of the Contract, the terms and conditions applicable to any such extended term of the Contract shall be the same terms and conditions as set forth in the Contract, unless the Parties shall have agreed otherwise pursuant to a valid amendment concluded in accordance with Article 21.1 above.

21.3 The terms or conditions of any supplemental undertakings, licenses, or other forms of agreement concerning any goods or services provided under the Contract shall not be valid and enforceable against UNRWA nor in any way shall constitute an agreement by UNRWA thereto unless any such undertakings, licenses or other forms are the subject of a valid amendment concluded in accordance with Article 21.1, above.

22. AUDITS AND INVESTIGATIONS:

22.1 Each invoice paid by UNRWA shall be subject to a post-payment audit by auditors, whether internal or external, of UNRWA or by other authorized and qualified agents of UNRWA at any time during the term of the Contract and for a period of two (2) years following the expiration or prior termination of the Contract. UNRWA shall be entitled to a refund from the Contractor for any amounts shown by such audits to have been paid by UNRWA other than in accordance with the terms and conditions of the Contract.

22.2 The Contractor acknowledges and agrees that, from time to time, UNRWA may conduct investigations relating to any aspect of the Contract or the award thereof, the obligations performed under the Contract, and the operations of the Contractor generally relating to performance of the Contract. The right of UNRWA to conduct an investigation and the Contractor’s obligation to comply with such an investigation shall not lapse upon expiration or prior termination of the Contract. The Contractor shall provide its full and timely cooperation with any such inspections, post-payment audits or investigations. Such cooperation shall include, but shall not be limited to, the Contractor’s obligation to make available its personnel and any relevant documentation for such purposes at reasonable times and on reasonable conditions and to grant to UNRWA access to the Contractor’s premises at reasonable times and on reasonable conditions in connection with such access to the Contractor’s personnel and relevant documentation. The Contractor shall require its agents, including, but not limited to, the Contractor’s attorneys, accountants or other advisers, to reasonably cooperate with any inspections, post-payment audits or investigations carried out by UNRWA hereunder.

23. LIMITATION ON ACTIONS:

23.1 Except with respect to any indemnification obligations in Article 6, above, or as are otherwise set forth in the Contract, any arbitral proceedings in accordance with Article 17.2, above, arising out of the Contract must be commenced within three years after the cause of action has accrued.

23.2 The Parties further acknowledge and agree that, for these purposes, a cause of action shall accrue when the breach actually occurs, or, in the case of latent defects, when the injured Party knew or should have known all of the essential elements of the cause of action, or in the case of a breach of warranty, when tender of delivery is made, except that, if a warranty extends to future performance of the goods or any process or system and the discovery of the breach consequently must await the time when such goods or other process or system is ready to perform in accordance with the requirements of the Contract, the cause of action accrues when such time of future performance actually begins.
The Contractor represents and warrants that:

24.1 it has not and shall not offer any direct or indirect benefit arising from or related to the performance of the Contract or the award thereof to any representative, official, employee, or other agent of UNRWA.

24.1.2 neither it, its parent entities (if any), nor any of the Contractor's subsidiary or affiliated entities (if any) is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

24.1.3 neither it, its parent entities (if any), nor any of the Contractor's subsidiaries or affiliated entities (if any) is engaged in the sale or manufacture of anti-personnel mines or components utilized in the manufacture of anti-personnel mines.

24.1.4 it shall take all appropriate measures to prevent sexual exploitation or abuse of anyone by its employees or any other persons engaged and controlled by the Contractor to perform any services under the Contract. For these purposes, sexual activity with any person less than eighteen years of age, regardless of any laws relating to consent, shall constitute the sexual exploitation and abuse of such person. In addition, the Contractor shall refrain from, and shall take all reasonable and appropriate measures to prohibit its employees or other persons engaged and controlled by it from exchanging any money, goods, services, or other things of value, for sexual favors or activities, or from engaging any sexual activities that are exploitive or degrading to any person. UNRWA shall not apply the foregoing standard relating to age in any case in which the Contractor's personnel or any other person who may be engaged by the Contractor to perform any services under the Contract is married to the person less than the age of eighteen years with whom sexual activity has occurred and in which such marriage is recognized as valid under the laws of the country of citizenship of such Contractor's personnel or such other person who may be engaged by the Contractor to perform any services under the Contract.

24.1.5 neither it, its parent entities (if any), nor any of the Contractor's subsidiary, affiliated entities (if any) or suppliers is engaged in any transactions with, and/or the provision of resources and support to, individuals and organizations associated with, receiving any type of training for, or engaged in, any act or offense described in Article 2, Sections 1, 3, 4 or 5 of the International Convention for the Suppression of the Financing of Terrorism, adopted by the General Assembly of the United Nations in Resolution 54/109 of 9 December 1999.

24.2 The Contractor acknowledges and agrees that the provisions of Article 24.1 constitute an essential term of the Contract and that breach of any such representation and warranty shall entitle UNRWA to terminate the Contract immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind.

25. BANK GUARANTEE: If specifically requested by UNRWA, prior to the signature of the Contract, the Contractor shall provide a banker's guarantee from a bank acceptable to UNRWA in the form, amount and manner prescribed by UNRWA.

26. NOTICE AND OTHER FORMALITIES:

26.1 Service of any notice referred to in the Contract or arising therefrom shall be deemed to be valid if sent by registered mail, or by cable, or by hand against authorized signature on receipt, to the address of the Party concerned as set forth in the Contract.

26.2 It is expressly agreed that UNRWA shall have the right to enforce these General Conditions without the necessity of resorting to service of summons, mise en demeure, notarial notice, and without any legal formalities or court proceedings of any kind whatsoever; it is being further agreed that the notice provided for in the preceding paragraph is adequate for all purposes notwithstanding any provision of applicable law to the contrary.

27. SEVERABILITY: If any term, covenant, or condition of this Contract or the application thereof to any person or circumstance shall to any extent be determined to be invalid or unenforceable, the remainder of this Contract, or the application of such term, covenant or condition to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby and each term, covenant, or condition of this Contract shall remain valid and be enforced to the fullest extent possible.
UNRWA’s e-tendering system, In-tend is integrated with the United Nations Global Marketplace portal (www.ungm.org). Please find instructions on how to register your company and how to access the tender documentation. For further assistance, please contact UNGM at registry@ungm.org or use the Help Button on the UNGM site.

**STEP 1: CREATION OF YOUR UNGM ACCOUNT**
To access the tender documents, you need to be completed the registration process at Basic level and have a ‘Registered’ status with UNRWA on UNGM.

Go to www.ungm.org and click on the ‘Register’ box.

Read the explanation about UNGM vendor registration process and click on the button ‘Continue to registration’.
Accept the **UN Supplier Code of Conduct** by ticking the corresponding box, introduce your company details and click on the ‘Continue to registration’ button.

**UN Supplier Code of Conduct**

- The values enshrined in the United Nations Charter - respect for fundamental human rights, social justice and human dignity, and the equal rights of men and women - are the foundation of the UN Supplier Code of Conduct. Vendors to the United Nations are expected to agree with and promote these values. The Supplier Code of Conduct deals with labour, human rights, environmental awareness, bribery and corruption. It specifically refers to the issues of child labour, health and safety of workers, gifts and hospitality, and employment of UN staff.

To register your company's interest in doing business with the United Nations, you are **required** to accept the UN Supplier Code of Conduct. The Supplier Code of Conduct must be accepted by an official with the authority to do so, as this acceptance commits the company to the content of the Code of Conduct and the promotion of the enshrined values.

Please read and accept the [UN Supplier Code of Conduct](#).

Complete your login details and click on the ‘Create login’ button.

**Login details**

- Firstname
- Surname
- Email address
- Password
- Repeat password

Here you are able to create your company’s UNGM account, as well as your username and password. Please ensure that your email address is correct. An email containing an activation link will be sent to this address. To activate the account, you need to click on the link or copy it into your browser. After activation, you will be able to complete the registration process.

Please note that if you do not receive the email or misplace it, you can always resend it to yourself. A copy of the email will be available in the UNGM inbox of your account. You can access it by clicking on the Email icon in the top banner of your screen. You can log in with your email address and the password you have chosen. If you cannot remember your password, please click on the ‘Forgot password’ button when logging in.

If you need assistance, please use the Help button.

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**STEP 2: ACTIVATE YOUR UNGM ACCOUNT**

Once you have created your UNGM account, please do not forget to **activate it**. Go to your personal email inbox, where you should have received an email from UNGM containing an activation link. Please activate your UNGM account by clicking on the activation link.
If you have not received the activation email, please check your Spam filter/inbox. Note that you can resend the activation email to yourself from your UNGM inbox. Review the 'Registration Process' link in the left hand side menu for further information and detailed instructions on how to proceed in order to complete your UNGM registration. In addition, please find below the link to the video guideline on how to successfully register your company on UNGM: https://www.ungm.org/Public/Video/View/3

**IMPORTANT:** We kindly remind you that the 'Registration for UN staff' process is meant for UN personnel only and does not apply to vendors.

STEP 3: LOG INTO YOUR UNGM ACCOUNT

In order to **log into your UNGM account**, please click on the ‘Log in’ link at the top right-hand corner of the page. You will need to use your **username** which is the email address you registered with and your **password**.

If you do not remember your password, please use the ‘forgotten password’ functionality.

STEP 4: COMPLETE YOUR VENDOR REGISTRATION FORM IN UNGM

From the ‘Registration’ link in the left-hand menu, you can complete your registration form. It only takes about 5-8 minutes to complete your Basic registration.

Please note that some tabs appear in red and others in green. The red tabs mean that you are missing information. The asterisk (*) indicates information that is required and you will not be able to submit the registration without this information.

Please do not forget to **submit your completed registration** to the UN organizations matching your company’s profile. Please verify that **UNRWA is part of the list of UN organizations which match your company’s profile** in the ‘UN organizations’ tab.

STEP 5: CHECK YOUR STATUSES AND UNGM NUMBER IN THE DASHBOARD

If you have completed your basic level registration in the past, please ensure that your **basic registration with UNRWA is complete**. You can either check this information from your Dashboard (for instance your registration status is Registration/Vendor to Update) or directly in your registration. If not, please update/modify the information requested by the UNGM system before proceeding.

STEP 1: SEARCH FOR TENDER NOTICES ISSUED BY UNRWA

From the UNGM homepage, click on the ‘Business Opportunities’ box or click on the ‘Tender notices’ link in the left-hand menu. Click on the ‘show more criteria’ button on the upper right side.

In the ‘UN organizations’ field, please type UNRWA. The system will automatically show all the **active tender notices issued by UNRWA**.

On the side of each tender notice, you will find a green button with either ‘Express interest’ (if this is the first time you view the notice) or ‘View documents’.

In case of first access, click on ‘Express interest’ to notify UNRWA that you are interested in participating in this tender. After a few seconds, the button will change in a green button ‘View documents’. Click on this ‘View Documents’ button (on the left side) to gain access to the tender
documents.

STEP 2: TENDER MANAGEMENT

You will be transferred from the UNGM portal to the UNRWA e-tendering system. The following 'Tender Management' screen should appear. IMPORTANT: If it does not show the Tenders screen, please inform immediately UNRWA at INTEND.ADMIN@UNRWA.ORG.

You are now in the UNRWA e-tendering system. Under this area you will find several menu tabs:

- Tender: General information about this tender
- RFP documents: IMPORTANT, here is the deadline plus all the documents of the tender process (RFP or ITB). In the same area, you have the placeholders for uploading your proposal and all your documents.
- Correspondence: an area where you can write email and receive answers from UNRWA.
- Clarifications: an area for reading the clarifications issued by UNRWA and made available to all bidders. Please ensure to read all the clarifications as they become part of the specifications.
- History: a log of past activities related to this tender

From this point onward, we think that the system is more intuitive and you will be able to navigate without major difficulties. But if you have questions, please contact us using the CORRESPONDENCE function of the e-tendering system or via email at INTEND.ADMIN@UNRWA.ORG.

STEP 3: ACCESS THE TENDER AT A LATER STAGE

There is a short-cut to the tender notices. After the login in UNGM, you can select the Menu option 'My tenders/contracts' in the left-hand menu. You can also click on the ‘View document’ button next to the notices or click on the UNRWA link under ‘My tenders/contracts’ in order to access the UNRWA e-tendering system and see the details of the tender notice and its documents.

STEP 4: DOWNLOAD THE TENDER DOCUMENTS

In the ‘Tender Management’ page, please select the ‘RFP documents’ menu tab, scroll down until the section ‘Tender documents received’ and download all documents.

STEP 5: ATTACH AND SUBMIT DOCUMENTS

If any mandatory documents have been requested, they will be shown in the ‘My tender return’ section against a red button. You will need to attach them using the ‘Attach Documents’ button within the ‘My Tender Return’ section to the bottom of this screen.

If a Questionnaire is required to be completed, it will be shown in Red and marked ‘Not Started’ in the ‘My Tender Return’ section. It is mandatory that any Questionnaire’s must be completed.

To attach additional documents you wish to submit as part of your tender return, click the ‘Attach Documents’ button under the ‘My Tender Return’ section (if available). These will then appear in the ‘My Tender Return’ section.

NOTE: Large files may take some time to upload. We advise you to keep the files under 5MB. IMPORTANT: When you have completed all the above steps and are ready to submit your tender return, click the red ‘Submit Return’ at the bottom of this page.
The Tender Alert Service is an added service for vendors who would like to be notified of relevant tender notices via email. With the Tender Alert Service, you can receive notification of relevant business opportunities that match your company's products and/or services directly to your email address.

This service is provided at a fee of USD250 per year. You can also access tenders free of charge under Tender Notices.

If you need Help at any stage of the process, you can contact via the ‘Help’ functionality on the UNGM website. We aim to respond to all queries within 48 hours. Please note that you can categorize your query, which enable us to treat it more efficiently.

If you urgently need assistance, you are also welcome to contact us at registry@ungm.org for urgent assistance.
ANNEX L – INSTRUCTIONS ON MANDATORY SITE VISIT

Mandatory Site Visit
Structural and Architectural Works at UNRWA Headquarters Amman.

Dates:
Tuesday, Wednesday, and Thursday 16, 17, and 18 February 2021 at 03:30 PM – at UNRWA Headquarters (Amman), Bayader Wadi Seer, Industrial Street, Building #: 136

Purpose:
Due to the nature of the scope of work and in light of the importance of the planned contract(s), UNRWA wishes to ensure that all aspects of the tender documentation are understood and that the offers are submitted in accordance with the stated requirements by the due date. The purpose of this site visit is explain this important requirement and to answer questions that the prospective bidders may have.

Process:
1) The vendor must confirm the intention to participate in the Site Visit latest by 14th February 2021, by sending the attached form below by email, to cssd@unrwa.org with a copy to Mr. Julius Birungi, (j.birungi@unrwa.org) and Ms. Dua’a Ghannam (d.ghannam@unrwa.org)

Click here to open the google map:
https://www.google.com/maps/dir//UNRWA+HEAD+QUARTER%28%29+Bayader+Wadi+Seer,%28Amman%29/@31.947211,35.9692765,11z/data=!4m8!4m7!1m0!1m5!1m1!1s0x151ca158125ae0a5:0x3b7e543a035d9b85!2m2!1d35.8292008!2d31.947211
CONFIRMATION FORM

CONFIRMATION to UNRWA by email to cssd@unrwa.org with a copy to Mr. Julius Birungi (j.birungi@unrwa.org) and Ms. Dua’a Ghannam (d.ghannam@unrwa.org)

Site Visit

Structural and Architectural Works at UNRWA Headquarters Amman. Dates:

Tuesday, Wednesday, and Thursday 16, 17, and 18 February 2021 at 03:30 PM – at UNRWA Headquarters (Amman), Bayader Wadi Seer, Industrial Street, Building #: 136

Company name: __________________________________________________________

UNGM Vendor registration No.: ____________

Representative’s name and signature: ________________________________

Our Company intends to attend the site visit

We confirm that the company’s following representatives will participate in the tender’s mandatory Site Visit (Maximum 1 persons from each company are allowed):

(1) Representative’s first name: _________________ last name: ____________________

Email or Fax: _________________________ Tel.: ______________________________

Company name ___________________ *Passport No./ ID number : ______________________________

(2) Representative’s first name: _________________ last name: ____________________

Email or Fax: _________________________ Tel.: ______________________________

Company name ___________________ *Passport No./ ID number : ______________________________

*Representative’s Passport /ID No. required for Security Check by UNRWA Security Staff