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**Ministry of Finance**

**Federal Republic of Somalia**

**Bidding Document for**

**Procurement of Small Works**

**Contract Title: Construction of District Administration Office in Burtinle, Nugaal Region, Puntland Sate of Somalia**

**REFERENCE NO:** **SO-MOF-12122-CW-RFB**

**Project:** **Special Financing Facility for Local Development (SFF-LD)**

**Date issued: October 23, 2017**



**Invitation for Bids (IFB)**

**Federal Republic of Somalia**

**Special Financing Facility for Local Development (SFF-LD) Project**

**Credit No. TFOA1715**

**Project ID No. P156257**

**Contract Title: Construction of District Administration Office in Burtinle, Nugaal Region of Puntland State of Somalia**

**Reference No**. **SO-MOF-12122-CW-RFB**

1. The Federal Republic of Somalia has receivedfinancing from the World Bank toward the cost of the Special Financing Facility for Local Development (FF-LD) project, and intends to apply part of the proceeds toward payments under the contract no. **SO-MOF-12122-CW-RFB** **for the Construction of District Administration Office in Burtinle, Nugaal Region, Puntland State of Somalia**
2. The Ministry of Finance of Federal Republic of Somalia now invites sealed bids from eligible and qualified bidders for **the** construction of District Administration Office Block which is to be built on a plot of total floor area of **548 square meters** in Burtinle town, and will consist of eleven (11) offices, two (2) meeting rooms, seven (7) wash rooms including one self-contained washroom, one (1) elevated Water Tank, one (1) ground water Tank and one (1) septic Tank.
3. Bidding will be conducted through the National Competitive Bidding (NCB) procedures specified in the World Bank’sGuidelines: [*Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers*](http://www.worldbank.org/html/opr/procure/guidelin.html), *(dated* January 2011, *Revised July 2014),* and is open to all bidders from Eligible Source Countries as defined in the Bidding Documents.
4. Bidding document comprise the following three volumes. Bidders are further recommended to be mindful to the following sections of volume 1 in the Standard bidding document:-

**Volume 1**: This Invitation for Bids

Section 1 - Instructions to Bidders (ITB)

Section II - Bid Data Sheet (BDS)

Section III - Evaluation and Qualification Criteria

Section IV - Bidding Forms

Section VII -Works Requirements

**Volume 2:** Bill of Quantities

**Volume 3**: Bid Drawings/designs

1. Submitted bids shall be valid for a period of **90-days** after the deadline for submission of Bids in accordance with ITB 18.1 in the Bid Data Sheet (BDS). Time allowed for the completion of the whole works is within **5 calendar months from start date.**
2. Mandatory documents for the responsiveness of Bid document:-

* Filled and duly signed Letter of Bid
* Filled and duly signed Bid Securing Declaration for a period of 2 years
* A duly signed power of attorney in case of a joint venture or if the bidding documents are signed by a different person rather than the executive or the owner of the company
* Duly completed and signed Bill of Quantities
* 2014 to 2016 audited financial statements. In the absence of the audited financial statement, it is a mandatory requirement to submit signed company’s financial statement, balance sheet for the same period and signed Bank Statement
* Certificate of Registration/license from the Federal Ministry of Commerce/Public Works or relevant authorities in a member state of the Federal Republic of Somalia.
* Biodata for a Project Manager and key technical staff listed in section III: Evaluation & Qualification criteria (Signed curriculum vitae to be attached).
* Evidence of having access key equipment listed in section III: Evaluation & Qualification criteria

***Companies failing to submit the mandatory documents will not be considered as responsive and as such will not be technically evaluated.***

1. Qualification requirements include:-
2. The Minimum required average annual construction turnover for the successful bidder in the past **3 years i.e. 2014- 2016,** calculated as total certified payments received for contracts in progress and/or completed is as follows:**USD $ 300,000.**
3. Participation as contractor, management contractor or sub-contractor in at least two (2) contracts involving construction of buildings in the last three (3) y**ears**, that have been successfully and substantially completed with a total value of **USD 200,000**
4. The minimum amount of liquid assets and/or credit facilities net of other contractual commitment of the successful Bidder shall be**: USD 200,000**

**In addition to the above requirements, please refer Section (III) of the bidding document for detailed Evaluation & Qualification criteria. Bidders shall provide all the information requested in the forms included in Section IV (Bidding Forms) of Volume (I) of the bidding document.**

1. A complete set of Bidding Documents in English may be obtained by interested eligible bidders on [SFF-LD Website](http://sff-ld-mof.so/) , [Puntland Post](http://puntlandpost.net/) and/or [Hiiraan website](https://hiiraan.com/news4/2016/job/105060/hol_job_posting_expression_of_interest_call_for_proposals.aspx) free of charge. **Modification on the contents of the bidding document downloaded electronically by the bidder other than (section IV: Bidding Forms) will disqualify bidder’s bid.**
2. A pre-bid meeting shall be conducted by the employer on **October 31, 2017 @ 11:00 AM** in the Ministry of Finance opposite Central Bank of Somalia, Shangani District-Mogadishu, Somalia. Bidders who are not in Mogadishu are encouraged to attend the pre-bid meeting through skype ([sffldprocurement@gmail.com](file:///C:\Users\G2\Desktop\sffldprocurement@gmail.com)) to address any possible questions or seek clarifications.
3. Interested eligible bidders are recommended to contact this e-mail [sffldprocurement@gmail.com](file:///C:\Users\G2\Desktop\sffldprocurement@gmail.com) in order to receive concurrently minutes of the pre-bid meeting and /or any clarifications from potential bidders regarding the project.
4. Number of copies of bids to be completed and returned shall be **one original** and **two copies.** All Bids must be sealed an envelope marked “Bid reference No-: **SO-MOF-12122-CW-RFB indicating ‘original’ or ‘copy’** and must be delivered to the **address below** on or before**November 21, 2017 at 12:00 PM.** Electronic bidding shall not be permitted. Late bids will be rejected and returned unopened. Bids shall be opened immediately after bid submission deadline, in the presence of the bidders or bidders representatives who choose to attend, at the same location as for bid submission
5. The address referred to above is:

**5th floor, Procurement Desk**

**Ministry of Finance**

**Opposite Central Bank of Somalia**

**Shangani District, Mogadishu**

**Federal Republic of Somalia**

**Standard Bidding Document**

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**Section I - Instructions to Bidders**

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| 1. General | |
| 1. Scope of Bid | * 1. In connection with the Invitation for Bids specified in the Bid Data Sheet (BDS), the Employer, as **specified in the BDS**, issues these Bidding Documents for the procurement of the Works as specified in Section VII, Works Requirements. The name, identification, and number of lots (contracts) of this bidding are **specified in the BDS**. |
|  | Throughout this Bidding Document:  (a) the term “in writing” means communicated in written form and delivered against receipt;  (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and  (c) “day” means calendar day. |
| 1. Source of Funds | * 1. The Borrower or Recipient (hereinafter called “Borrower”) **specified in the BDS** has received or has applied for financing (hereinafter called “funds”) from the from the International Bank for Reconstruction and Development or the International Development Association (hereinafter called “the Bank”) in an amount **specified in the BDS**, toward the project named **in the BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which these Bidding Documents are issued. |
|  | Payment by Bank will be made only at the request of the Borrower and upon approval by the Bank, and will be subject, in all respects, to the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the Loan (or other financing) account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the UN, is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing). |
| 1. Corrupt and Fraudulent Practices | The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section VI.  In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit the Bank to inspect all accounts, records and other documents relating to any prequalification process, bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the UN. |
| 1. Eligible Bidders | A Bidder may be a firm that is a private entity, or a government-owned entity—subject to ITB 4.5—or any combination of them in the form of a joint venture (JV), under an existing agreement, or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution. **Unless specified in the BDS**, there is no limit on the number of members in a JV. |
|  | A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:   * + 1. directly or indirectly controls, is controlled by or is under common control with another Bidder; or     2. receives or has received any direct or indirect subsidy from another Bidder; or     3. has the same legal representative as another Bidder; or     4. has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or     5. participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or     6. or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or     7. or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the Contract implementation;     8. would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm;     9. has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unlessthe conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the procurement process and execution of the contract. |
|  | * 1. A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.7. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services. |
|  | * 1. A Bidder that has been sanctioned by the Bank in accordance with the above ITB 3.1, including in accordance with the Bank’s Fraud Policy shall be ineligible to be prequalified for, bid for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address **specified in the BDS**. |
|  | * 1. Bidders that are Government-owned enterprises or institutions in the Employer’s Country may participate only if they can establish that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not dependent agencies of the Employer. To be eligible, a government-owned enterprise or institution shall establish to the Bank’s satisfaction, through all relevant documents, including its Charter and other information the Bank may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution. |
|  | * 1. A Bidder shall not be under suspension from bidding by the Employer as the result of the operation of a Bid–Securing Declaration. |
|  | * 1. Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.   2. A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request. |
| 1. Eligible Materials, Equipment and Services | * 1. The materials, equipment and services to be supplied under the Contract and financed by the Bank may have their origin in any country subject to the restrictions specified in Section V, Eligible Countries, and all expenditures under the Contract will not contravene such restrictions. At the Employer’s request, Bidders may be required to provide evidence of the origin of materials, equipment and services. |
| 1. Contents of Bidding Document | |
| 1. Sections of Bidding Document | * 1. The Bidding Document consist of Parts 1, 2*,* and3*,* which include all the Sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITB 8.   **PART 1 Bidding Procedures**  Section I - Instructions to Bidders (ITB)  Section II - Bid Data Sheet (BDS)  Section III - Evaluation and Qualification Criteria  Section IV - Bidding Forms  Section V - Eligible Countries  Section VI – Policy-Corrupt and Fraudulent Practices  **PART 2 Works Requirements**  Section VII - Works Requirements  **PART 3 Conditions of Contract and Contract Forms**  Section VIII - General Conditions of Contract (GCC)  Section IX - Particular Conditions of Contract (PCC)  Section X - Contract Forms |
|  | * 1. The Invitation for Bids issued by the Employer is not part of the Bidding Document. |
|  | * 1. Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Bidding Documents, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Documents in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail. |
|  | * 1. The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its bid all information and documentation as is required by the Bidding Documents. |
| 1. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting | * 1. A Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer’s address **specified in the BDS** or raise its inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of bids within a period **specified in the BDS**. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. **If so specified in the BDS**, the Employer shall also promptly publish its response at the web page identified in the BDS. Should the clarification result in changes to the essential elements of the Bidding Documents, the Employer shall amend the Bidding Documents following the procedure under ITB 8 and ITB 22.2. |
|  | The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder’s own expense. |
|  | * 1. The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection. |
|  | * 1. **If so specified in the BDS**, the Bidder’s designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. |
|  | * 1. The Bidder is requested, to submit any questions in writing, to reach the Employer not later than one week before the meeting. |
|  | * 1. Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder. |
| 1. Amendment of Bidding Document | * 1. At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Documents by issuing addenda. |
|  | * 1. Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the addendum on the Employer’s web page in accordance with ITB 7.1. |
|  | * 1. To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2. |
| 1. Preparation of Bids | |
| 1. Cost of Bidding | The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process. |
| 1. Language of Bid | The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language **specified in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern. |
| 1. Documents Comprising the Bid | * 1. The Bid shall comprise the following:  1. Letter of Bid in accordance with ITB 12; 2. completed Schedules, in accordance with ITB 12 and 14: **as specified in the BDS**; 3. Bid Security or Bid Securing Declaration, in accordance with ITB 19.1; 4. alternative bids, if permissible, in accordance with ITB 13; 5. written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2; 6. documentary evidence in accordance with ITB 17 establishing the Bidder’s qualifications to perform the contract if its Bid is accepted; 7. Technical Proposal in accordance with ITB 16; and 8. any other document **required in the BDS**.    1. In addition to the requirements under ITB 11.1, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.    2. The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid. |
| 1. Letter of Bid and Schedules | The Letter of Bid and Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.2. All blank spaces shall be filled in with the information requested. |
| 1. Alternative Bids | Unless otherwise **specified in the BDS**, alternative bids shall not be considered. |
|  | When alternative times for completion are explicitly invited, a statement to that effect will be **included in the BDS**, as will the method of evaluating different times for completion. |
|  | Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer’s design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer. |
|  | When **specified in the BDS**, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be **identified in the BDS** and described in Section VII.Works Requirements. The method for their evaluation will be stipulated in Section III.Evaluation and Qualification Criteria. |
| 1. Bid Prices and Discounts | The prices and discounts (including any price reduction) quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below. |
|  | * 1. The Bidder shall submit a bid for the whole of the works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section IV. Bidding Forms. In case of admeasurement contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities. |
|  | * 1. The price to be quoted in the Letter of Bid, in accordance with ITB 12.1, shall be the total price of the bid, excluding any discounts offered. |
|  | * 1. The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1. |
|  | * 1. **Unless otherwise provided in the BDS** and the Conditions of Contract, the prices quoted by the Bidder shall be fixed. If the prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data in Section IV- Bidding Forms and the Employer may require the Bidder to justify its proposed indices and weightings.   2. If so specified in ITB 1.1, bids are invited for individual lots (contracts)or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the bids for all lots (contracts) are opened at the same time. |
|  | * 1. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices[[1]](#footnote-1) and the total bid price submitted by the Bidder. |
| 1. Currencies of Bid and Payment | * 1. The currency (ies) of the bid and the currency (ies) of payments shall be as **specified in the BDS**. |
|  | * 1. Bidders may be required by the Employer to justify, to the Employer’s satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Adjustment Data are reasonable[[2]](#footnote-2), in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders. |
| 1. Documents Comprising the Technical Proposal | * 1. The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV, Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidders’ proposal to meet the work requirements and the completion time. |
| 1. Documents Establishing the Qualifications of the Bidder | In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms. |
|  | * 1. If a margin of preference applies as specified in accordance with ITB 33.1, domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITB 33.1. |
| 1. Period of Validity of Bids | Bids shall remain valid for the period **specified in the BDS** after the bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive. |
|  | In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended for twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB 18.3. |
|  | If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be determined as follows:   * + 1. In the case of fixed price contracts, the Contract price shall be the bid price adjusted by the factor **specified in the** **BDS**.     2. In the case of adjustable price contracts, no adjustment shall be made.     3. In any case, bid evaluation shall be based on the bid price without taking into consideration the applicable correction from those indicated above. |
| 1. Bid Security | * 1. The Bidder shall furnish as part of its bid, either a Bid-Securing Declaration or a bid security **as specified in the BDS**, in original form and, in the case of a bid security, in the amount and currency specified in the BDS. |
|  | * 1. A Bid Securing Declaration shall use the form included in Section IV, Bidding Forms. |
|  | * 1. If a bid security is specified pursuant to ITB 19.1*,* the bid security shall be a demand guarantee in any of the following forms at the Bidder’s option:  1. an unconditional guarantee issued by a bank or financial institution (such as an insurance, bonding or surety company); 2. an irrevocable letter of credit; 3. a cashier’s or certified check; or 4. another security **specified in the BDS.**   from a reputable source from an eligible country. If the unconditional guarantee is issued by a financial institution located outside the Employer’s Country, the issuing financial institution shall have a correspondent financial institution located in the Employer’s Country to make it enforceable. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Employer prior to bid submission. The bid security shall be valid for twenty-eight (28) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2. |
|  | * 1. If a bid security or Bid Securing Declaration is specified pursuant to ITB 19.1, any bid not accompanied by a substantially responsive bid security or Bid-Securing Declaration shall be rejected by the Employer as non responsive. |
|  | * 1. If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s signing the Contract and furnishing the performance security pursuant to ITB 42. |
|  | * 1. The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security. |
|  | * 1. The bid security may be forfeited or the Bid Securing Declaration executed:  1. if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, , or any extension thereto provided by the Bidder; or 2. if the successful Bidder fails to:  sign the Contract in accordance with ITB 41; orfurnish a performance security in accordance with ITB 42. |
|  | * 1. The bid security or the Bid Securing Declaration of a JVshall be in the name of the JVthat submits the bid. If the JVhas not been constituted into a legally-enforceable JV*,* at the time of bidding, the Bid Security or the Bid Securing Declaration shall be in the names of all future members as named in the letter of intent mentioned in ITB 4.1 and ITB 11.2. |
|  | If a bid security is not required in the BDS, and   * 1. if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or   (b) if the successful Bidder fails to: sign the Contract in accordance with ITB 41; or furnish a performance security in accordance with ITB 42;  the Borrower may**,** if provided for in the BDS**,** declare the Bidder ineligible to be awarded a contract by the Employer for a period of time as stated in the BDS. |
| 1. Format and Signing of Bid | * 1. The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it “Original”. Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked “Alternative”. In addition, the Bidder shall submit copies of the bid in the number **specified in the BDS,** and clearly mark each of them “Copy.” In the event of any discrepancy between the original and the copies, the original shall prevail. |
|  | * 1. The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as **specified in the BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid. |
|  | * 1. In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.   2. Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid. |
| 1. Submission and Opening of Bids | |
| 1. Sealing and Marking of Bids | * 1. The Bidder shall enclose the original and all copies of the bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as “Original”, “Alternative” and “Copy.” These envelopes containing the original and the copies shall then be enclosed in one single envelope. |
|  | The inner and outer envelopes shall:  (a) bear the name and address of the Bidder;  (b) be addressed to the Employer as **provided in the BDS** pursuant to ITB 22.1;  (c) bear the specific identification of this bidding process specified in accordance with BDS 1.1; and  (d) bear a warning not to open before the time and date for bid opening. |
|  | * 1. If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid. |
| 1. Deadline for Submission of Bids | * 1. Bids must be received by the Employer at the address and no later than the date and time **specified in the BDS**. When so specified in the BDS, bidders shall have **NO** option of submitting their bids electronically. |
|  | * 1. The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended. |
| 1. Late Bids | * 1. The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder. |
| 1. Withdrawal, Substitution, and Modification of Bids | A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:  (a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “Withdrawal,” “Substitution,” “Modification;” and  (b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 22. |
|  | * 1. Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders. |
|  | * 1. No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof. |
| 1. Bid Opening | * 1. Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25.3 all bids received by the deadline, at the date, time and place **specified in the BDS**, in the presence of Bidders` designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be as specified in the BDS. |
|  | * 1. First, envelopes marked “Withdrawal” shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked “Substitution” shall be opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked “Modification” shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further. |
|  | * 1. All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; the presence or absence of a bid security, or Bid Securing Declaration, if required; and any other details as the Employer may consider appropriate. Only discounts and alternative bids read out at bid opening shall be considered for evaluation. The Letter of Bid andtheBill of Quantitiesare to be initialed by representatives of the Employer attending bid opening in the manner **specified in the BDS**. The Employer shall neither discuss the merits of any bid nor reject any bid (except for late bids, in accordance with ITB 23.1). |
|  | * 1. The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; and the presence or absence of a bid security, if one was required. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders. |
| 1. Evaluation and Comparison of Bids | |
| 1. Confidentiality | * 1. Information relating to the evaluation of bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is communicated to all Bidders in accordance with ITB 40. |
|  | * 1. Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid. |
|  | Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing. |
| 1. Clarification of Bids | To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer’s request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31. |
|  | If a Bidder does not provide clarifications of its bid by the date and time set in the Employer’s request for clarification, its bid may be rejected. |
| 1. Deviations, Reservations, and Omissions | * 1. During the evaluation of bids, the following definitions apply:   (a) “Deviation” is a departure from the requirements specified in the Bidding Document;  (b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and  (c) “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Document. |
| 1. Determination of Responsiveness | * 1. The Employer’s determination of a bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB11. |
|  | * 1. A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,   (a) if accepted, would: (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or(ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer’s rights or the Bidder’s obligations under the proposed Contract; or (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids. |
|  | * 1. The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VII (Works Requirements) have been met without any material deviation, reservation or omission. |
|  | If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission. |
| 1. Nonconformities, Errors, and Omissions | Provided that a bid is substantially responsive, the Employer may waive any nonconformity in the bid. |
|  | Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid. |
|  | Provided that a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price may be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the methods specified in Section III (Evaluation and Qualification Criteria). |
| * 1. Correction of Arithmetical Errors | Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:  (a) only for admeasurement contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;  (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and  (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above. |
|  | Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1, shall result in the rejection of the Bid. |
| 1. Conversion to Single Currency | For evaluation and comparison purposes, the currency (ies) of the Bid shall be converted into a single currency as **specified in the BDS**. |
| 1. Margin of Preference | * 1. **Unless otherwise specified in the** **BDS,** a margin of preference for domestic bidders[[3]](#footnote-3) shall not apply. |
| 1. Subcontractors | * 1. Unless otherwise stated in the BDS, the Employer does not intend to execute any specific elements of the Works by sub-contractors selected in advance by the Employer.   2. The Employer may permit subcontracting for certain specialized works as indicated in Section III. When subcontracting is permitted by the Employer, the specialized sub-contractor’s experience shall be considered for evaluation. Section III describes the qualification criteria for sub-contractors.   3. Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as **specified in the** **BDS.** |
| 1. Evaluation of Bids | * 1. The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted. |
|  | * 1. To evaluate a bid, the Employer shall consider the following:   (a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities[[4]](#footnote-4) for admeasurement contracts, but including Daywork[[5]](#footnote-5) items, where priced competitively;  (b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;  (c) price adjustment due to discounts offered in accordance with ITB 14.4;  (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;  (e) price adjustment for nonconformities in accordance with ITB 30.3;  (f) the additional evaluation factors are specified in Section III (Evaluation and Qualification Criteria); |
|  | * 1. The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation. |
|  | * 1. If this Bidding Document allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Letter of Bid, is specified in Section III. Evaluation and Qualification Criteria. |
|  | * 1. If the bid for an admeasurement contract, which results in the lowest Evaluated Bid Price, is seriously unbalanced or, front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract*.* |
| 1. Comparison of Bids | * 1. The Employer shall compare the evaluated prices of all substantially responsive bids established in accordance with ITB 35.2 to determine the lowest evaluated bid. |
| 1. Qualification of the Bidder | * 1. The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid meets the qualifying criteria specified in Section III. Evaluation and Qualification Criteria. |
|  | * 1. The determination shall be based upon an examination of the documentary evidence of the Bidder’s qualifications submitted by the Bidder, pursuant to ITB 17.1. |
|  | * 1. An affirmative determination of qualification shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder’s qualifications to perform satisfactorily. |
| 1. Employer’s Right to Accept Any Bid, and to Reject Any or All Bids | * 1. The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders. |
| 1. Award of Contract | |
| 1. Award Criteria | * 1. Subject to ITB 37.1*,* the Employer shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily. |
| 1. Notification of Award | * 1. Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, via the Letter of Acceptance included in the Contract Forms, that its bid has been accepted. At the same time, the Employer shall also notify all other Bidders of the results of the bidding, and shall publish in UNDB online the results identifying the bid and lot (contract) numbers and the following information:   (i) name of each Bidder who submitted a Bid;  (ii) bid prices as read out at Bid Opening;  (iii) name and evaluated prices of each Bid that was evaluated;  (iv) name of bidders whose bids were rejected and the reasons for their rejection; and  (v) name of the winning Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded. |
|  | * 1. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract. |
|  | The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected. |
| 1. Signing of Contract | * 1. Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement. |
|  | * 1. Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer. |
| 1. Performance Security | * 1. Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, subject to ITB 35.5, using for that purpose the Performance Security Form included in Section X. Contract Forms, or another form acceptable to the Employer.If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institutionlocated in the Employer’s Country. |
|  | * 1. Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily. |
| 1. Adjudicator | * 1. The Employer proposes a person to be appointed as Adjudicator under the Contract, at the hourly fee **specified in the BDS**, plus reimbursable expenses. If the Bidder disagrees with this proposal, the Bidder should so state in his Bid. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority designated in the Particular Conditions of Contract (PCC) pursuant to Clause 23.1 of the General Conditions of Contract (GCC), to appoint the Adjudicator. |

Section II - Bid Data Sheet (BDS)

A. Introduction

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| **ITB 1.1** | The identification number of the bidding process is: **SO-MOF-12122-CW-RFB**  The Employer is: **Ministry of Finance,Federal Republic of Somalia** |
| **ITB 1.1** | The name of the bidding process is: **Construction of District Administration Office in Burtinle, Nugaal Region, Puntland State of Somalia** |
| **ITB 2.1** | The Borrower is: **The Federal Republic of Somalia** |
| **ITB 2.1** | The name of the Project is: **Special Financing Facility for Local Development (SFF-LD)** |
| **ITB 2.1** | Loan or financing Agreement amount: **USD** **6,000,000 from the Multi-Partner Fund, administered by the World Bank.** |
| **ITB 4.1** | Maximum number of members in the Joint Venture (JV) shall be: **Not more than Three.**  **Bidders have the option to bid individually, in joint venture with eligible domestic / foreign firms or in partnership with domestic / foreign sub-contractors.** |
| **ITB 4.4** | A list of debarred firms and individuals is available on the World Bank’s and United Nations external website respectively: <http://www.worldbank.org/debarr> and |

B. Bidding Documents

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| ITB 7.1 | For **clarification purposes** only, the Employer’s address is:  Attention: **Fatima Ahmed, Interim Procurement Specialist, SFF-LD project**  Address : **Procurement office on 5th floor**  SFF-LD Office, Ministry of Finance Head Quarter  Shangani District, Opposite Central Bank of Somali  Mogadishu, Somalia    E-mail: [**sffldprocurement@gmail.com**](mailto:mofsffpiu@gmail.com)  Requests for clarification should be received by the Employer no later than: **Fourteen (14) working days prior to the deadline for submission of Bids i.e. Saturday to Thursday*.*** |
| **ITB 7.1** | Web page: [**sff-ld-mof.so**](http://www.mof.gov.so) |
| **ITB 7.4** | A Pre-Bid meeting ***shall*** take place.  Address: **Conference room on 5th floor**  **Ministry of Finance HQ**  **Shangani District, Opposite Central Bank of Somali**  **Mogadishu, Somalia**  Date: **October 31, 2017**  Time: **11:00 AM**  **A site visit conducted by the Employer** **shall not be organized. However, the bidder may visit and inspect the site of the works for the purpose of assessing, at his own responsibility and expense.** |

C. Preparation of Bids

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| ITB 10.1 | The language of the bid is: **English**  All correspondence exchange shall be in **English**language. |
| ITB 11.1 | The Bid shall comprise the following:   1. **Filled and duly signed Letter of Bid in accordance with ITB 12** 2. **Completed schedules in accordance with ITB 12 &14** 3. **Bid Securing Declaration valid for 2 years, in accordance with ITB 19.2** 4. **N/A** 5. **A duly signed power of attorney in case of a joint venture or if the bidding documents are signed by a different person rather than the executive or the owner of the company** 6. **documentary evidence in accordance with ITB 17 establishing the Bidder’s qualifications to perform the contract if its Bid is accepted;** 7. **Technical Proposal in accordance with ITB 16; including a statement of work methods, equipment, personnel, mobilization and construction schedules** |
| **ITB 11.1 (h)** | The Bidder shall submit with its bid the following additional documents:   1. **Certificate of Registration/license from the Federal Ministry of Commerce/Public Works or from relevant authorities of a member of Federal Member States** 2. **2014 to 2016 audited financial statements. In the absence of the audited financial statement, it is a mandatory requirement to submit signed company’s financial statement, balance sheet for the same period and signed Bank Statement** 3. **Proof of experience of having undertaken at least 2 similar assignments for the last three years (copies of previous contracts to be attached)** |
| **ITB 13.1** | Alternative bids **shall not bepermitted**. |
| **ITB 13.2** | Alternative times for completion **shall not bepermitted**. |
| **ITB 13.4** | Alternative technical solutions shall be permitted for the following parts of the Works: ***N/A*** |
| **ITB 14.5** | The prices quoted by the Bidder **shall not be subject to adjustment** during the performance of the Contract. |
| **ITB 15.1** | The prices shall be quoted by the bidder in:**USD** |
| **ITB 18.1** | The bid validity period shall be: **90-days.** |
| **ITB 19.2** | **A Bid-Securing Declaration for a period of 2 years shall be required**. |
| **ITB 19.3 (d)** | Other types of acceptable securities: **None** |
| **ITB 19.9** | If the Bidder incurs any of the actions prescribed in subparagraphs (a) or (b) of this provision, the Borrower will declare the Bidder ineligible to be awarded contracts by the Employer for a period of **Two (2)**years. |
| **ITB 20.1** | In addition to the original of the bid, the number of copies is: **two (2).** |
| **ITB 20.2** | The written confirmation of authorization to sign on behalf of the Bidder shall consist of:   1. **Power of Attorney for the signatory to sign the Bid in case the submission is not signed by the executive or the owner of the company; and** 2. **In the case of Bids submitted by an existing or intended JV, an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, in accordance with ITB 4.1(a), and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.** |

D. Submission and Opening of Bids

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| **ITB 22.1** | Bidders ***shall not have*** the option of submitting their bids electronically. |
| **ITB 22.1** | For **bid submission purposes** only, the Employer’s address is:  Attention: **Fatima Ahmed, SFF-LD Procurement Desk**  Address: **5th floor of the MOF Building**  **Shangani District, Opposite Central Bank of Somali**  City:**Mogadishu**  Country: **Federal Republic of Somalia**  **The deadline for bid submission is:**  Date: **November 21, 2017**  Time: **12:00 PM**  Bidders **shall not** have the option of submitting their bids electronically. |
| **ITB 25.1** | The bid opening shall take place at:  Address : **Conference room on 5th floor**  **Ministry of Finance (MOF) HQ**  **Opposite Central Bank of Somali**  **Shangani District, Mogadishu**  Country: **Federal Republic of Somalia**  Date: **November 21, 2017**  Time:**12:00PM** |
| **ITB 25.3** | **The Letter of Bid and Priced Bill of Quantities shall be initialed by *Two (2)* representatives of the Employer conducting Bid opening**. **Each Bid (original documents) shall be numbered, any modification to the unit or total price shall be initialed by a minimum of two members from the evaluation committee panel.** |

E. Evaluation and Comparison of Bids

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| **ITB 32.1** | For purposes of evaluation, the exchange rate shall be: **Not applicable.** |
| **ITB 33.1** | A margin of preference**shall not apply***.* |
| **ITB 34.1** | At this time the Employer **shall not**execute certain specific parts of the Works by sub-contractors selected in advance. |

F. Award of Contract

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| ITB 43.1 | The Adjudicator proposed by the Employer: **Solicitor General, Federal Republic of Somalia**  The hourly fee for this proposed Adjudicator shall be: **No charge** |

Section III - Evaluation and Qualification Criteria

This section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders if the bidding was not preceded by a prequalification exercise and post qualification is applied. In accordance with ITB 35 and ITB 37, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

Wherever a Bidder is required to state a monetary amount, Bidders should indicate the **USD** equivalent using the rate of exchange determined as follows:

* -For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.

Exchange rates shall be taken from the publicly available source identified in the ITB 32.1. Any error in determining the exchange rates in the Bid may be corrected by the Employer

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1. Margin of Preference NOT APPLICABLE

2. Evaluation

In addition to the criteria listed in ITB 35.2 (a) – (e) the following criteria shall apply:

2.1 Adequacy of Technical Proposal APPLICABLE

# Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section VII (Works Requirements).

2.2 Multiple Contracts NOT APPLICABLE

2.3 Alternative Completion Times NOT APPLICABLE

2.4 Technical Alternatives NOT APPLICABLE

2.5 Specialized Subcontractors NOT APPLICABLE

3. Qualification

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Eligibility and Qualification Criteria** | | | **Compliance Requirements** | | | | **Documentation** |
| **No.** | **Subject** | **Requirement** | **Single Entity** | **Joint Venture (existing or intended)** | | | **Submission Requirements** |
| **All Parties Combined** | **Each Member** | **One Member** |
| 1. Eligibility | | | | | | | |
| 1.1 | **Nationality** | Nationality in accordance with ITB 4.3 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Forms ELI – 1.1 and 1.2, with attachments |
| 1.2 | **Conflict of Interest** | No conflicts of interest in accordance with ITB 4.2 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Letter of Bid |
| 1.3 | **Eligibility** | Not having been declared ineligible by the UN, as described in ITB 4.4, 4.5, 4.6 and 4.7 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Letter of Bid |
| 1.4 | **Government Owned Entity of the Borrower country** | Meets conditions of ITB 4.5 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Forms ELI – 1.1 and 1.2, with attachments |
| 1.5 | **United Nations resolution or Borrower’s country law** | Not having been excluded as a result of prohibition in the Borrower’s country laws or official regulations against commercial relations with the Bidder’s country, or by an act of compliance with Bank Security Council resolution, both in accordance with ITB 4.7 and Section V. | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Forms ELI – 1.1 and 1.2, with attachments |
| 2. Historical Contract Non-Performance | | | | | | | |
| 2.1 | **History of Non-Performing Contracts** | Non-performance of a contract[[6]](#footnote-6) did not occur as a result of contractor default **since 1st January 2014.** | Must meet requirement12 | Must meet requirements | Must meet requirement[[7]](#footnote-7) | N/A | Form CON-2 |
| 2.2 | **Suspension Based on Execution of Bid Securing Declaration by the Employer or withdrawal of the Bid within Bid validity** | Not under suspension based on execution of a Bid Securing Declaration pursuant to ITB 4.6 or withdrawal of the Bid pursuant ITB 19.9. | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Bid Submission Form |
| 2.3 | **Pending Litigation** | Bidder’s financial position and prospective long term profitability sound according to criteria established in 3.1 below and assuming that all pending litigation will be resolved against the Bidder | Must meet requirement | N/A | Must meet requirement | N/A | Form CON – 2 |
| 2.4 | **Litigation History** | No consistent history of court/arbitral award decisions against the **Bidder[[8]](#footnote-8) since 1st January 2014** | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Form CON – 2 |
| 3. Financial Situation and Performance | | | | | | | |
| 3.1 | **Financial Capabilities** | (i) The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the **construction cash flow requirements estimated as follows USD $200,000** for the subject contract(s) net of the Bidders other commitments  (ii) The Bidders shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.  (iii) The audited balance sheets or, if not required by the laws of the Bidder’s country, other financial statements acceptable to the Employer, **for the last three(3)years** shall be submitted and must demonstrate the current soundness of the Bidder’s financial position and indicate its prospective long-term profitability. | Must meet requirement  Must meet requirement  Must meet requirement | Must meet Requirement  Must meet requirement  N/A | N/A    N/A  Must meet requirement | N/A  N/A  N/A | Form FIN – 3.1, with attachments |
| 3.2 | **Average Annual Construction Turnover** | **Minimum average annual construction turnover for the past 3 years i.e. 2014-2016 as follows USD $ 300,000** calculated as total certified payments received for contracts in progress and/or completed within the last three (3)years | Must meet requirement | Must meet requirement | N/A | N/A | Form FIN – 3.2 |
| 4. Experience | | | | | | | |
| 4.1 (a) | **General Construction Experience** | Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management **contractor for the last three *(3)* years, starting 1st January 2014** | Must meet requirement | N/A | Must meet requirement | N/A | Form EXP – 4.1 |
| 4.2 (a) | **Specific Construction & Contract Management Experience** | (i) A minimum number of similar[[9]](#footnote-9) contracts specified below that have been satisfactorily and substantially[[10]](#footnote-10) completed as a prime contractor, joint venture member[[11]](#footnote-11), management contractor or sub-contractor11 **between 1st January 2014 and application submission deadline: (i) two (2) contracts involving construction of buildings with a total value USD $ 200,000** | Must meet requirement | Must meet requirement[[12]](#footnote-12) | N/A | N/A | Form EXP 4.2(a) |
|  |  |
| 4.2 (b) |  | For the above and any other contracts completed and under implementation as prime contractor, joint venture member, management contractor or sub-contractor[[13]](#footnote-13) on or after the first day of the calendar year during the period stipulated in 4.2 (a) above, a minimum construction experience in the following key activities successfully completed[[14]](#footnote-14):   * **Floor area of the building = 548 sqm** * **Anticipated rate of construction = 1300m2/year** | Must meet requirements | Must meet requirements | N/A | Must meet the following requirements for the key activities listed below[[15]](#footnote-15) *[list key activities and the corresponding minimum requirements]* | Form EXP – 4.2 (b) |

# 

5 Personnel

The Bidder must demonstrate that it will have the personnel for the key positions that meet the following requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Position** | **Total Work Similar**  **Experience (Years)** | **In Similar Works Experience**  **(Years)** |
| 1 | Construction Manager - Qualification = Bsc. In Civil / Structural Engineering or Equivalent | 4 | 3 |
| 2 | Site Engineer - Qualification = Bsc. In Civil / Structural Engineering or Equivalent | 3 | 3 |
| 3 | Electrical Engineer - Qualification = Bsc. In Electrical Engineering or Equivalent | 4 | 3 |

The Bidder shall provide details of the proposed personnel and their experience records in the relevant Forms included in Section IV, Bidding Forms.

6. Equipment

The Bidder must demonstrate that it will have access to the key Contractor’s equipment listed hereafter:

|  |  |  |
| --- | --- | --- |
| **No.** | **Equipment Type and Characteristics** | **Minimum Number required** |
| 1 | Excavator | 1 |
| 2 | Dump Truck | 1 |
| 3 | Concrete Mixer | 2 |
| 4 | Concrete vibrators | 2 |
| 5 | Reinforcement bending tools | 1 |
| 6 | Compressor | 1 |

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section IV.

Section IV - Bidding Forms

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Letter of Bid

|  |
| --- |
| *The Bidder must prepare the Letter of Bid on stationery with its letterhead clearly showing the Bidder’s complete name and address.*  ***Note: All italicized text is for use in preparing these form and shall be deleted from the final products.*** |

Date: ***[insert date (as day, month and year) of Bid Submission]***

NCB No.: **[*insert number of bidding process*]**

Invitation for Bid No.: ***[insert identification]***

Alternative No.:***[insert identification No if this is a Bid for an alternative]***

To: **[*insert complete name of Employer*]**

1. We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8) ;
2. We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
3. We have not been suspended nor declared ineligible by the Employer based on execution of a Bid Securing Declaration in the Employer’s country in accordance with ITB 4.6
4. We offer to execute in conformity with the Bidding Documents the following Works: **[*insert a brief description of the Works*]**;
5. The total price of our Bid, excluding any discounts offered in item (f) below is:

In case of only one lot, total price of the Bid ***[insert the total price of the bid in words and figures, indicating the various amounts and the respective currencies]*;**

In case of multiple lots, total price of each *lot* ***[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*;**

In case of multiple lots, total price of all lots (sum of all lots)***[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]***;

1. The discounts offered and the methodology for their application are:

(i) The discounts offered are: ***[Specify in detail each discount offered.****]*

(ii) The exact method of calculations to determine the net price after application of discounts is shown below*:**[****Specify in detail the method that shall be used to apply the discounts****];*

1. Our bid shall be valid for a period of **[*specify the number of calendar days*]**  days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
2. If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;
3. Weare not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.2(e), other than alternative bids submitted in accordance with ITB 13;
4. We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by a member of the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Employer’s country laws or official regulations or pursuant to a decision of the United Nations Security Council;
5. We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;[[16]](#footnote-16)
6. We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: ***[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]***

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Recipient | Address | Reason | Amount |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

(If none has been paid or is to be paid, indicate “none.”)

1. We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
2. We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
3. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption

Name of the Bidder**\*** ***[insert complete name of person signing the Bid]***

Name of the person duly authorized to sign the Bid on behalf of the Bidder***\*\* [insert complete name of person duly authorized to sign the Bid]***

Title of the person signing the Bid ***[insert complete title of the person signing the Bid]***

Signature of the person named above  *[****insert signature of person whose name and capacity are shown above****]*

Date signed *\_****[insert date of signing]*** day of ***[insert month]***, ***[insert year]***

**\***: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\*: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.

Schedules

Bill of Quantities

**PROPOSED BURTINLE DISTRICT ADMINSTRATION OFFICE IN BURTINLE, SOMALIA – NUGAAL REGION**

(The complete set of Bill of Quantities for the works are part of the bid documents.)

**See Volume 2- Bill of Quantities-Burtinle District Administration Office**

Form of Bid-Securing Declaration

Date: *[insert date (as day, month and year)]*

Bid No.: *[insert number of bidding process]*

To: *[insert complete name of Employer]*

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding in any contract with the entity that invited Bids for the period of time of ***2 Years*** starting on *[insert date]*, if we are in breach of our obligation(s) under the bid conditions, because we:

(a) have withdrawn our Bid during the period of bid validity specified in the Letter of Bid; or

(b) having been notified of the acceptance of our Bid by the Employer during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the ITB.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder**\*** ***[insert complete name of person signing the Bid]***

Name of the person duly authorized to sign the Bid on behalf of the Bidder**\*\* *[insert complete name of person duly authorized to sign the Bid]***

Title of the person signing the Bid ***[insert complete title of the person signing the Bid]***

Signature of the person named above  *[****insert signature of person whose name and capacity are shown above****]*

Date signed *\_****[insert date of signing]*** day of **[*insert month]****,* ***[insert year]***

**\***: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\*: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid *[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the bid.]*

Technical Proposal

Technical Proposal Forms

**Personnel**

**Equipment**

**Site Organization**

**Method Statement**

**Mobilization Schedule**

**Construction Schedule**

**Others**

Forms for Personnel

**Form PER – 1: Proposed Personnel**

Bidders should provide the names of suitably qualified personnel to meet the specified requirements for each of the positions listed in Section III (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

|  |  |
| --- | --- |
| **1.** | **Title of position** |
|  | **Name** |
| **2.** | **Title of position** |
|  | **Name** |
| **3.** | **Title of position** |
|  | **Name** |
| **4.** | **Title of position** |
|  | **Name** |
| **5.** | **Title of position** |
|  | **Name** |
| **6.** | **Title of position** |
|  | **Name** |
| **etc.** | **Title of position** |
|  | **Name** |

**Form PER – 2: Resume of Proposed Personnel**

The Bidder shall provide all the information requested below. Fields with asterisk (\*) shall be used for evaluation.

|  |  |  |
| --- | --- | --- |
| **Position\*** | | |
| **Personnel information** | **Name \*** | **Date of birth** |
|  | **Professional qualifications** | |
| **Present employment** | **Name of** Employer | |
|  | **Address of** Employer | |
|  | **Telephone** | **Contact (manager / personnel officer)** |
|  | **Fax** | **E-mail** |
|  | **Job title** | **Years with present** Employer |

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

|  |  |  |
| --- | --- | --- |
| From\* | To\* | Company, Project , Position, and Relevant Technical and Management Experience\* |
|  |  |  |
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Forms for Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (\*) shall be used for evaluation.

|  |  |  |
| --- | --- | --- |
| **Type of Equipment\*** | | |
| **Equipment Information** | **Name of manufacturer,** | **Model and power rating** |
|  | **Capacity\*** | **Year of manufacture\*** |
| **Current Status** | **Current location** | |
|  | **Details of current commitments** | |
|  |  | |
| **Source** | **Indicate source of the equipment**  **o Owned o Rented o Leased o Specially manufactured** | |

The following information shall be provided only for equipment not owned by the Bidder.

|  |  |  |
| --- | --- | --- |
| **Owner** | **Name of owner** | |
|  | **Address of owner** | |
|  |  | |
|  | **Telephone** | **Contact name and title** |
|  | **Fax** | **Telex** |
| **Agreements** | **Details of rental / lease / manufacture agreements specific to the project** | |
|  |  | |
|  |  | |

Bidder’s Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder

Form ELI -1.1: Bidder Information Form

Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  
NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  
Page *\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |
| --- |
| Bidder's name |
| In case of Joint Venture (JV), name of each member: |
| Bidder's actual or intended country of registration:  *[indicate country of Constitution]* |
| Bidder's actual or intended year of incorporation: |
| Bidder's legal address [in country of registration]: |
| Bidder's authorized representative information  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Address: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Telephone/Fax numbers: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  E-mail address: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |
| 1. Attached are copies of original documents of  🞎 Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.3.  🞎 In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1.  🞎 In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing:   * Legal and financial autonomy * Operation under commercial law * Establishing that the Bidder is not dependent agency of the Employer   2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. |

Form ELI -1.2: Information Form for JV Bidders

(to be completed for each member of Joint Venture)

Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* of *\_\_\_\_\_\_\_\_\_\_\_\_* pages

|  |
| --- |
| Bidder’s Joint Venture name: |
| JV member’s name: |
| JV member’s country of registration: |
| JV member’s year of constitution: |
| JV member’s legal address in country of constitution: |
| JV member’s authorized representative information  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Telephone/Fax numbers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  E-mail address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. Attached are copies of original documents of  🞎 Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3.  🞎 In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5.  2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. |

Form CON – 2: Historical Contract Non-Performance, Pending Litigation and Litigation History

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |  |  |  |
| --- | --- | --- | --- |
| Non-Performed Contracts in accordance with Section III, Evaluation Criteria and Qualifications | | | |
| 🞎 Contract non-performance did not occur since 1st January *[insert year]* specified in Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.1.  🞎 Contract(s) not performed since 1st January *[insert year]* specified in Section III, Evaluation Criteria and Qualifications, requirement 2.1 | | | |
| **Year** | **Non- performed portion of contract** | **Contract Identification** | **Total Contract Amount (current value, currency, exchange rate and US$ equivalent)** |
|  |  | Contract Identification:  Name of Employer:  Address of Employer:  Reason(s) for non performance: |  |
| Pending Litigation, in accordance with Section III, Evaluation Criteria and Qualifications | | | |
| 🞎 No pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3. | | | |
| 🞎 Pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3 as indicated below. | | | |

Form CCC: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of contract | Employer, contact address/tel/fax | Value of outstanding work (current US$ equivalent) | Estimated completion date | Average monthly invoicing over last six months (US$/month) |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| 5. |  |  |  |  |
| etc. |  |  |  |  |

Form FIN – 3.1: Financial Situation and Performance

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

**1. Financial data**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of Financial information in**  **(currency)** | **Historic information for previous** *\_\_\_\_\_\_\_\_\_years,*  *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  **(amount in currency, currency, exchange rate, USD equivalent)** | | | | |
|  | 2014 | 2015 | 2016 |  |  |
| Statement of Financial Position (Information from Balance Sheet) | | | | | |
| Total Assets (TA) |  |  |  |  |  |
| Total Liabilities (TL) |  |  |  |  |  |
| Total Equity/Net Worth (NW) |  |  |  |  |  |
| Current Assets (CA) |  |  |  |  |  |
| Current Liabilities (CL) |  |  |  |  |  |
| Working Capital (WC) |  |  |  |  |  |
| Information from Income Statement | | | | | |
| Total Revenue (TR) |  |  |  |  |  |
| Profits Before Taxes (PBT) |  |  |  |  |  |
| Cash Flow Information | | | | | |
| Cash Flow from Operating Activities |  |  |  |  |  |

**2. Sources of Finance**

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

|  |  |  |
| --- | --- | --- |
| **No.** | **Source of finance** | **Amount (US$ equivalent)** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
|  |  |  |

**2. Financial documents**

The Bidder and its parties shall provide copies of financial statements for *\_\_\_\_\_\_\_\_\_\_\_*years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.2. The financial statements shall:

(a) reflect the financial situation of the Bidder or in case of JV member , and not an affiliated entity (such as parent company or group member).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

🞎 Attached are copies of financial statements[[17]](#footnote-17) for the *\_\_\_\_\_\_\_\_\_\_\_\_*years required above; and complying with the requirements

Form FIN - 3.2: Average Annual Construction Turnover

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | **Annual turnover data (construction only)** | | |
| **Year** | **Amount Currency** | | **Exchange rate-N/A** | **IN USD** |
| *2014* | *[insert amount and indicate currency]* | |  |  |
| **2015** |  | |  |  |
| **2016** |  | |  |  |
|  |  | |  |  |
|  |  | |  |  |
| Average Annual Construction Turnover \* |  | |  |  |

\* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.

Form FIN3.3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Section III (Evaluation and Qualification Criteria)

|  |  |
| --- | --- |
| Source of financing | Amount (US$ equivalent) |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |

Form EXP - 4.1: General Construction Experience

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |  |  |  |
| --- | --- | --- | --- |
| Starting  Year | Ending  Year | Contract Identification | Role of  Bidder |
|  |  | Contract name: *­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Brief Description of the Works performed by the  Bidder: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Amount of contract: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Name of Employer: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Address: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |  |
|  |  | Contract name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Brief Description of the Works performed by the  Bidder: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Amount of contract: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Name of Employer: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Address: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |  |
|  |  | Contract name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Brief Description of the Works performed by the  Bidder: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Amount of contract: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Name of Employer: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  Address: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |  |

Form EXP - 4.2(a): Specific Construction and Contract Management Experience

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Similar Contract No.** | **Information** | | | | |
| Contract Identification |  | | | | |
| Award date |  | | | | |
| Completion date |  | | | | |
| Role in Contract | Prime Contractor 🞎 | | Member in  JV  🞎 | Management Contractor  🞎 | Sub-contractor 🞎 |
| Total Contract Amount |  | | | US$ *\** | |
| If member in a JV or sub-contractor, specify participation in total Contract amount |  |  | | *\** | |
| Employer's Name: |  | | | | |
| Address:  Telephone/fax number  E-mail: |  | | | | |

**Form EXP - 4.2(a) (cont.)**

**Specific Construction and Contract Management Experience (cont.)**

|  |  |
| --- | --- |
| **Similar Contract No.** | **Information** |
| Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III: |  |
| 1. Amount |  |
| 2. Physical size of required works items |  |
| 3. Complexity |  |
| 4. Methods/Technology |  |
| 5. Construction rate for key activities |  |
| 6. Other Characteristics |  |

Form EXP - 4.2(b): Construction Experience in Key Activities

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Sub-contractor's Name[[18]](#footnote-18) (as per ITB 34.2 and 34.3): *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

NCB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

Sub-contractor's Name (as per ITB 34.2 and 34.3): *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

All Sub-contractors for key activities must complete the information in this form as per ITB 34.2 and 34.3 and Section III, Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Information** | | | | |
| Contract Identification |  | | | | |
| Award date |  | | | | |
| Completion date |  | | | | |
| Role in Contract | Prime Contractor  🞎 | Member in  JV  🞎 | | Management Contractor  🞎 | Sub-contractor  🞎 |
| Total Contract Amount |  | | | US$ | |
| Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year | Total quantity in the contract  (i) | | Percentage  participation  (ii) | | Actual Quantity Performed  (i) x (ii) |
| 2014 |  | |  | |  |
| 2015 |  | |  | |  |
| 2016 |  | |  | |  |
| Employer’s Name: |  | | | | | |
| Address:  Telephone/fax number  E-mail: |  | | | | | |

|  |  |
| --- | --- |
|  | **Information** |
| Employer’s Name: |  |
| Address:  Telephone/fax number  E-mail: |  |

2. Activity No. Two

3. …………………

|  |  |
| --- | --- |
|  | **Information** |
| Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III: |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Section V - Eligible Countries

**Eligibility for the Provision of Goods, Works and Services in UN-financed Procurement**

1. In reference to ITB 4.7, and 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this bidding process: **None**

Under ITB 4.7(a) and 5.1:as a matter of law or official regulation, the Federal Republic of Somalia prohibits commercial relations with that country, provided that the Federal Republic is satisfied that such exclusion does not preclude effective competition for the provision of supplies or related services required;

Under ITB 4.7(b) and 5.1: by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Federal Republic of Somalia prohibits any import of good from that country or any payments to persons or entities in that country.

Section VI. Policy - Corrupt and Fraudulent Practices

(Section VI shall not be modified)

“**Fraud and Corruption:**

1.16 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts. In pursuance of this policy, the Bank:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;;

(ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “obstructive practice” is

(aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 1.16(e) below.

(b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

(c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

(d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank’s sanctions procedures, including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a UN-financed contract; and (ii) to be a nominated;

(e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.”

PART 2 – Works Requirements

Section VII - Works Requirements

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Specifications

BUILDING AND MISCELLANEOUS WORKS

GENERAL

This part of the specifications refers to all builders works incidental to any building and other miscellaneous items. Clauses elsewhere in the specification shall also be followed where relevant. Throughout the Drawings and Specifications all references to Standard Specification shall be deemed to be the latest edition of the Standard to which the clause refers at the time of tendering. No allowance shall be made for the Contractor's lack of knowledge in this particular respect.

This specification is to be read in conjunction with other parts covering the entire work.

### 

### Demolition

Any demolition of existing buildings or parts thereof shall be carried out in an approved manner so as to minimize the risk of damage to other structures in the vicinity. Method to be used shall be approved by the Resident Engineer. Demolition shall on no account exceed the limits indicated on the Drawings or as may be directed and before carrying out any demolition the Contractor shall confirm such limits with the Resident Engineer.

### 

### Material for Re-Use or Disposal

All material from demolitions required for re-use shall be carefully set-aside clear of the works and in a manner so as to avoid any inconvenience. The Contractor shall remove from site and dispose of all demolition materials not required and approved for re-use.

FOUNDATIONS

### General

The protective layer above foundation level in normal material shall not be removed until directly before the Contractor is ready to cast building concrete. If the Contractor is permitted to trim a foundation in advance of placing blinding concrete then the foundation shall be protected against ingress or evaporation of moisture by approved means.

### 

### Blinding

No concrete or other material shall be placed until the formation has been examined and approved. Due notice shall be given to the Resident Engineer to enable him to examine the formation. Where applicable, blinding concrete shall be laid immediately following the Resident Engineer's approval of the formation. The specified area of the bottom of the excavation shall be blinded with a layer of 1: 3: 6 by volume concrete. or as otherwise specified of the thickness shown on the Drawings or described in the Bill of Quantities.

During 24 hours after the blinding concrete is placed no further work 'Shall be carried out in the excavation, except for drainage of water.

### 

### Hardcore

Hardcore shall be leveled, watered, well packed, rammed and where possible rolled with a 5- ton roller. Where rolling is impossible compaction shall be by hand or by mechanical tampers. Before any concrete is laid on hard-core, the hard-core shall be leveled and blinded with fine stone chippings, rolled and watered as necessary. All work with hard-core shall be to the Resident Engineer’s approval. Hard-core filling is measured after compaction.

### 

### Damp Proof Course

Damp proof course felt shall be bitumen impregnated and complying with the requirements of BS743 unless otherwise specified. Impermeable plastic sheeting as described in the Contract shall comply with BS 4646. Damp-proof course bituminous felt free from tears and holes shall be lapped 150mm at running joints and for full width of wall at angles and intersections and bedded on and including a 12mm leveled screed of cement mortar.

If so specified on the Drawings or elsewhere in the contract the felt shall protrude from the outer face of the wall to form an anti-ant lip. Polythene vapor barrier of sheeting as specified in the contract shall, unless otherwise specified, be laid on a formation blinded with 25mm thickness of sand. The joints shall be made with a suitable adhesive in a welted lap joint.

### 

### Insecticide Treatment

Generally all white ants' nests shall be destroyed within the perimeter of the building(s) and within 20 meters of the building(s). Queen ants shall be taken out and destroyed, holes and tunnels impregnated with insecticide and voids filled with approved material. Where an ant-proof course is specified it shall be made by application of Rentokil Termite Soil Concentrate or approved equivalent - diluted one part concentrate to forty parts Water by weight.

The solution shall be applied at a rate of 5 liters per m2 to the whole area of the building immediately before (36 hours maximum) the concrete is poured. Additionally 5 litres per running meter shall be applied to all critical areas such as both sides of wall foundations, piers and porches. Treatment shall not be made when the sail is excessively wet. Precautions shall be taken to prevent disturbance of the treated areas before they are covered.

WALLING

### Walling General

All walls shall be carried up evenly with uniform joints. Any wall or partition necessarily left at a different level must be raked back. No part of a wall may be carried up more than 1.0 meter higher at one time than any other part, and in such cases the jointing shall be made in long steps. All perpends, reveals, quoins, internal angles etc. shall be kept strictly true and square and levelled round. All walling shall be plumbed vertically. All faces of walls to be plastered are to have all projections dressed off and the joints raked out as key for plaster. Bricks, blocks and stones shall be laid true horizontal in mortar properly bedded and jointed, all joints filled with mortar at every course. Blocks and stones shall be well wetted and top of wall wetted and raked back before laying a new course. Blocks and stonework shall be staggered so that no vertical joint in any one course is within approx. 12.5cm of a similar joint in the courses immediately above and below. Unless otherwise specified joints shall be 10-12mm thick.

Unless otherwise specified walls of less than 22.5cm thickness shall be reinforced with one row of 20 gauge hoop iron 25mm wide built into every third course. All reinforcement shall be laid for the full length of the course, lapped 30mm and crimped at running joints, well lapped at junctions and carried at least 120mm into abutting walls at intersections. Putlog holes and beam filling Holes for timber built into or passing through a wall shall be squared out to suit the timber size and angle and lined with 3 ply roofing felt cut flush to finished wall surfaces. Putlog holes shall not be less than one course deep before filling to suite timber. Where shown on the Drawings, walls are to be carried up to the underside of the roof sheets and are to be cut on the top edge to suite roof slope and flushed up in cement mortar.

In the case of walls receiving plaster, or other facings, putlog holes must be filled before any facing is applied and prices must include for additional cost of free standing scaffolding as necessary thereby.

### 

### Stone Walling

The masonry stone strength characteristics shall be as specified. The following strength

Classifications shall apply:

i. Class B – Minimum compressive strength of 3.5 N/mm2

ii. Class A1 – Minimum compressive strength of 7.0 N/mm2

iii Class A2 – Minimum compressive strength of 5.0 N/mm2

iv. Class A3 – Minimum compressive strength of 10.5 N/mm2

Sound and hard stones free from defects and with each surface at right angles to all adjoining surfaces shall be bedded and jointed in cement mortar 1:3 by volume. Joints shall be flushed up and grouted solid as the works proceed or pointed as required.

### 

### Concrete Block Walling

Manufacturing of concrete blocks shall be by using an approved block-making machine and shall meet the crushing strengths specified. When produced on site the Contractor shall be solely responsible for making test blocks and experimenting with locally available or if necessary imported materials to ascertain what mix-will be necessary to attain the required strength. The mix shall contain not less than one part of cement to nine parts of aggregate by volume. The maximum size of aggregate should not exceed over 7mm unless otherwise specified.

Manufacture shall be carried out under shelter and after casting the blocks shall be carefully deposited on edge on racks under sheds and left for 3 days during which period they shall be kept constantly wet. After that the blocks shall be placed on edge on racks in the open and protected by sacking or other approved covering and kept wet for a further 5 days. Then the blocks shall be left in the same position without wetting for a further 20 days.

Where required for bonding purpose -made half or three-quarter length blocks shall be used. Cutting of blocks to obtain bond will only be permitted where expressly allowed by the Resident Engineer. Should the Contractor obtain blocks from local manufacturers or suppliers he shall be responsible for ensuring that the blocks supplied are of such quality as to meet the specified requirements. The Resident Engineer shall select test samples at random from the site or supplier. No work with concrete blocks shall commence prior to a test report being presented to and accepted by the Resident Engineer.

Concrete blocks shall be bedded and jointed in cement mortar or gauged line mortar as specified in the Contract and composed as described in contract. All blocks shall be handled and stacked with care. No broken block or block of improper quality may be used.

### Brick walling

Only hand stacking and off-loading of facing and Resident Engineering bricks will be permitted whether at the place of manufacture, in transit, or at the site unless palletized. Brickwork shall be in accordance with the recommendations of BS 5390. All brickwork shall be executed in the bond and built to the dimensions shown in the Contract. In the absence of specific instructions, brickwork one brick thick and over shall be in English bond.

No half bricks or bats shall be used, except where necessary for bonding. Mortar to be used shall be of type and composition as specified in the Contract.

STRUCTURAL TIMBER

All timber shall be sound, thoroughly seasoned, free from sapwood, shakes, cracks, splits, large loose or dead knots, boxed heart, waney edges, insect attack, fungus growth or other defects. Timber shall be straight and true; any warped or twisted timber will be rejected. Moisture content shall not exceed the recommendation given in BS 1186.

Unless otherwise specified all timber to be incorporated in the work, but excluding timber to be oiled or varnished, shall before delivery to the site be pressure impregnated with Preservative according to BS 5268: Part 5. In so far as possible cutting and shaping of the timber shall be completed before preservative treatment is carried out.

ROOFING

### Corrugated Sheet Roofing

**a) General**

All corrugated roof sheeting shall be laid and fixed strictly in accordance with the manufacturer's printed instructions. Holes for fixing bolts and screws shall be prepared in crowns of corrugation. Holes in asbestos and plastic sheets shall be drilled 1.5mm larger than the bolt or screw to be used. Holes in galvanized steel sheets shall be punched from the underside.

Fixing to timber shall be by galvanized gimlet pointed screws and to concrete and steel by galvanized hook bolts and nuts. No drilling of steel or concrete members is allowed. Unless otherwise specified bolts and screws to angular and large section corrugated sheets shall be of 8mm diameter and to small section corrugated sheets of 6mm diameter. All fixing bolts and screws shall be fitted with approved washers suitable for the profile in use and shall be in accordance with BS 1494: Part 1.

End laps shall be minimum 150mm and side laps minimum 1 or 1½ corrugation, depending on sheet corrugation. The open joint of the side lap on the surface shall be placed away from the prevailing wind. Sheets shall be fixed at eaves and end laps with 2 fixings per sheet width and at intermediate supports with one fixing per sheet width. Accessories shall be fixed in accordance with the manufacturer's recommendations.

No person shall be allowed to go on to the roofing without using crawling board.

**b) Galvanized steel corrugated sheeting**

Galvanized steel corrugated sheeting shall be in accordance with KS 06-02 and not less than 0.56mm thick. Before laying it shall be ensured that the sheets are free from twists and buckles and that the galvanizing is free from any defect and firmly bonded to the steel. All necessary ridges, valleys, flashings and the like of the same profile and quality as the roofing sheets shall be available. Unless otherwise specified connection to square abutment shall be formed by flattening two corrugations without damaging the galvanization and turning up 150mm against abutment allowing for thermal movement.

**c) Translucent sheeting**

Glass fiber reinforced translucent plastics to BS 4154 shall be of approved manufacture and satisfying any requirements specified for fire resistance. Sizes and profiles shall match those of the roofing sheets in use.

### Tile roofing

**a) Underlay**

Reinforced roofing felt to BS 747 or Polythene, 500 gauges to BS 3012, as specified in the contract, shall be laid parallel with eaves lapped 150mm horizontally and 300mm vertically and nailed to each rafter at centers not exceeding 300mm. At hips 600mm wide strips shall be laid and fixed to overlap general underlay. At valleys 600 wide strips shall be laid and fixed to underlay general underlay. Underlay shall be nailed to top of fascia.

**b) Battens for tiles or cedar shingles**

Battens for concrete and clay tiles shall be set out to the gauge recommended by the tile manufacturer with a minimum headlamp of 75mm and so that each roof slope consists of complete tiles without cutting at ridges and eaves. Battens for cedar shingles shall be set out to a gauge not exceeding 125mm for 400mm long shingles and not exceeding 150mm for 475mm long shingles. Batten shall be 50x25mm sawn pod carpus treated with preservative and not less than 1200mm long. They shall be nailed through the underlay to each rafter and butt jointed at rafters.

**c) Laying and fixing tiles**

Generally, tiles shall be laid and fixed in accordance with the manufacturer’s recommendations. Tiles shall be nailed or wired to battens every third course and nailed to battens at eaves, verges and at the top course beneath the ridge. Where so specified clips shall be used to fix tiles to battens. Left hand verges shall be formed with special tiles, right hand verges with standard tiles. Both bedded in mortar on an asbestos cement sheet under cloak projecting 40mm from the face of the wall below.

At ridges and hips the tiles shall be jointed and the edges bedded in mortar. Hip tiles shall be nailed to battens and a hip-iron screwed to the hip rafter at the bottom of each hip. Valleys to roofs more than 30 degrees pitch may be formed with proprietary valley tiles and roof tiles cut to rake and bedded in mortar.

Valleys to roofs 30 degrees pitch and less shall not be formed with valley tiles. The valley shall be formed with 13mm timber covered with sheet metal as specified, which is dressed up under the tiles. Tiles shall be cut to rake and bedded in mortar leaving a 120mm wide valley.

Tiles shall be cut closely to abutments and cover flashings shall be dressed down over raised contour of adjacent tiles. All glass tiles shall be wired to battens.

**d) Laying and Fixing of Cedar Shingles**

Shingles shall be laid with a gap of 3mm between adjacent shingles in the same course. At eaves, an under course of full length shingles shall be laid and covered by a course of shingles laid with at least 40mm side lap. The following courses shall be laid to a double headlap of at least 125mm for 400 long shingles and 150mm for 475mm long shingles. Each course shall have a side lap to the proceeding course of at least 40mm.

Shingles shall be fixed with nails to battens at every course using two nails per shingle through pre-drilled holes positioned 15 to 20mm from the edge. Nail- heads shall not be driven into shingles. Ridges shall be of galvanized mild steel. Both wings shall be nailed to shingles with galvanized steel nails at centers not exceeding 400mm. Extra wide shingles shall be used at hips and valleys. They shall be cut neatly to rake and fixed with two nails per shingle. Valleys shall be 120mm wide.

## WOODWORK

### General

All timber for permanent work shall, before use, be approved by the Resident Engineer for quality in accordance with the specification for its respective grade. Carpentry work shall be left with sawn surface unless specified to be wrought. All timber shall be as long as possible and practicable to eliminate joints. Scaring will only be permitted when necessary and then in positions and by methods approved by the Resident Engineer. The whole of the joiners shall be cut and framed together as soon after the commencement of the work as possible. Prepared woodwork shall be stacked under cover on or near the site where it is to be used.

All timber work not of the quality and class specified, or which is split, fractured, shrunk at the joints, or shows any defect or unsoundness, went of seasoning or bad workmanship shall be removed and put together a new, or replaced by new material as the Resident Engineer may direct. Carpenter's work shall be framed and trussed in the best possible manner and fitted with all necessary wrought iron ties, straps, bolts, screws etc. As shown on the Drawings or as directed.

Timber cut after preservative treatment shall have additional treatment with two coats of approved wood preservative to the cut surfaces before being finally fixed in position. All shavings, cuttings and other rubbish shall be cleared out and removed from premises Where carpenter's and joiner's work is being carried out and every care shall be taken that no Debris is left in the roof space.

Should any of the permanent timber work shrink, warp, or develop any other defects within twelve months after completion of the works, the same shall be removed and new fixed in its place together with all other work which may be affected thereby, all at the Contractor's cost and expense. Any fixed joinery which in the opinion of the Resident Engineer is liable to become bruised or damaged in any way, shall be completely cased and protected by the Contractor until the completion of the works.

### 

### Setting Out

All joiner's work shall be accurately set out on boards to full size for the information and guidance of the artisans before commencing the respective works, with all joints, iron work and other works connected therewith fully delineated. Such setting out must be shown to the Resident Engineer and approved before such respective works are commenced.

### Finish and Protection

All exposed surfaces of joining work shall be wrought and all arises "eased off" by planning and papering to an approved finish suitable to the specified treatment.

Only brads shall be used for exposed woodwork, punched well below the surface and the holes stopped up. On no account must flat-headed nails be used on exposed woodwork. Manufactured units to be painted shall be primed at the place of manufacture with an approved wood primer, after inspection and approval. The primer shall be applied by brush in an adequate and uniform coat to all surfaces including those to be bedded in Faces to be built into or in direct contact with block work or concrete shall be thoroughly brush coated with two coats of approved wood preservative.

### 

### Joinery

Workmanship for joinery shall unless otherwise specified comply with BS1186. All joiner's work shall be properly framed together, mortised, tenned, housed, shouldered, dovetailed, notched, pinned, bradded etc. as directed and to the Resident Engineer’s satisfaction and all properly glued up with the best quality glue.

Joint in joinery must be as specified or detailed and so designed and secured as to resist or compensate for any stresses to which they may be subjected. Loose joints are to be made where provision must be made for shrinkage, glued joints where shrinkage need not be considered and where sealed joints are required. Glue for load bearing joints or where conditions may be damp must be of the resin type. For non-load bearing joints or where dry conditions may be guaranteed casein or organic glues may be used.

No nails, screws or bolts are to be fixed in any split end. If splitting is likely, or is encountered in the course of the work, holes for nails must be bent at right angles to the grain. Lead holes are to be bored for all screws. When the use of bolts is specified the holes are to be bored from both sides of the timber. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers.

Bolts passing through timber shall have washers under heads and nuts. Bolts shall project at least two threads through nuts.

### 

### Ceiling Joists, Rendering and Ceilings

Where ceilings are shown on the Drawings, ceiling joists shall be fixed at 600 cm centers and round walls and the undersides shall be perfectly level. The brandering is to be 50 x 50 mm fixed to the ceiling joists and level with the underside of the joists at 60.0 cm centers maximum. Cutting and fitting at trusses shall be included in the rates.

Unless otherwise specified ceilings shall be formed of approved insulation board not less that12.5 mm thick. The boards shall be fixed to brandering in symmetrical pattern with edges chamfered to form “V” joints, all to the approval of the Resident Engineer. The underside of projecting eaves to buildings with ceilings shall be bat proofed by means of 50.8 x 25.4 mm wrought podo framing filled in with stout galvanized coffee tray Mesh. The framing shall be nailed on one edge to ends of rafters to butt up to fascia board and on other edge 50.8 x 25.4 mm sawn podo bearers plugged to wall.

### 

### Wooden Doors, Frames and Shelves

a) **Flush doors**

The materials used in the construction shall be in accordance with B.S. 459: Part 2. Flush doors shall be obtained from an approved manufacturer and sizes of members and methods of construction shall be to the Resident Engineer's approval.

Flush doors shall be 50mm thick overall faced both sides with 3mm ply plywood and lipped on all edges with 10mm hardwood. External doors shall be faced with exterior quality plywood both sides assembled with waterproof adhesive to type MR of B.S. 1203 or equal approved. All doors shall have suitable blocking pieces for door furniture.

b) **Ledged, braced and battened doors**

These shall be constructed in softwood herein before described with three 30mm x 150 mm ledges and two 30mm x 150mm braces covered one side with 25mm tongued and grooved and “V” jointed both sides battens the ends of the ledges set aback 15mm from the edge of the door and each board twice screwed to ledges and three times screwed to each brace with brass screws.

They shall be fitted 'with tee hinges and rim lock.

c) **Frame, ledged and battened doors**

These shall be constructed in softwood as described with 50mm x 100mm finished stiles and top rail, 25mm x 150 mm centre and bottom rail and two 50mm x 100mm braces all framed together and filled in on one side with 25mm tongued grooved and ‘v’ jointed both sides battens, “V” jointed all round one face and housed to stiles. The bottom rail shall be set 20mm above the bottom of the door and each board shall be twice screwed to rails and thrice screwed to braces with brass screws.

They shall be fitted with tee hinges and rim lock.

d) **Door Frames**

Doorframes shall be cedar 101.6 x 76mm rebated and moulded frames.

e) **Architraves**

The finishing to door frames to all doors shall consist of 76.2x 19mm wrought cedar splayed architraves plugged to walling and mitred at all angles. Where the door frame is set against the face of the wall or where there is insufficient room for the architrave the finishing shall consist of 19mm wrought guadrantmoulding planted on the frame.

f) **Wooden Shelves**

Slotted shelving shall consist of 50.8 x 25.4 mm wrought podo slots 19mm apart screwed to bearers. All board shelfing exceeding 22.5cm width shall be cross tongued. Block board shelving shall be 25.4 mm thick with hardboard or soft board veneer as stated or shown on Drawings and with 12.7 x 25.4 mm softwood or hardwood edge strip to match tongued in an all edges and the shelving screwed to bearers.

## IRONMONGERY AND OTHER FITTINGS

### Ironmongery General

All Ironmongery shall be approved by the Resident Engineer. The approved samples shall be regarded as the standard for work. All Ironmongery, locks and fittings shall be with screws, etc. to match.

### Locks

All external doors shall be provided with approved locks of cylinder mortise type and shall have a sufficient number of differs to ensure that no two external locks of the same Contract may be opened with the same key. Master key shall be provided. All internal doors shall be provided with approved latch locks, and handles.All locks shall have two keys with attached labels with door references.

### Fittings

Rubber doorstops of 40mm diameter shall be provided at all doors.

Standard, fittings to be supplied and installed:

At W.Cs: Chromium plated or recessed glassware toilet roll holder.

At Basins or sinks:

• 600mm long chromium plated towel rail with brackets.

• Mirror size 450 x 600mm with chromium plated dome headed screws.

• Chromium plated hat and coat hook

At Showers and Baths:

• 600mm long chromium plated towel rail with brackets

• Chromium plated or recessed glassware soap tray.

• Chromium plated hat and coat hook.

### Steel Windows

Windows shall be in accordance with BS 990: "Steel windows generally for domestic and similar buildings". They shall be delivered to Site with red oxide dipped finish. Unless otherwise specified all windows shall be burglar proofed in an approved manner and fly proof screws shall be provided to all opening windows in staff housing.

### Stays and Fasteners

Windows stays and fasteners shall be made of bronze and shall be obtained from approved source. Samples shall be submitted before ordering and the articles ordered shall match up with approved samples. Screws of a like metal shall be used for all fittings.

## SURFACE FINISHING

### General

The Contractor shall prepare sample areas of the screeds, pavings and plastering as directed until the quality, texture and finish required is obtained and approved by the Resident Engineer, after which all work executed shall conform with the respective approved samples.

### Plaster Work

All surfaces to be plastered or rendered shall be clean and free from dust, grease and loose projecting material. The surface shall be such as to provide a sufficient key for the plaster. Surfaces to receive plaster shall have the suction correctly adjusted by wetting with clean water.

No plastering shall take place until all chases for services have been cut, services installed and chases made good. On no account may finished plaster surfaces be chased and made good. Number of coats and coat thickness shall be as specified in the Contract. The surface of a coat to receive another coat shall be scored to form a key between them. No plaster shall be added to precious coats which are less than three days old and drying shrinkage is substantially completed.

All cement paving’s and plaster shall be kept continuously damp in the interval between application of coats and for seven days after the application of the final coat. Rendering and plastering shall be finished plumb, square, smooth and even. The finished surface shall be worked with proper metal floats and the face left with an even polished surface.

All work shall be to approval and any not complying with specifications or directions shall be hacked away and replaced at the Contractor’s expense. The treatment of concrete surfaces with a cement-bonding agent will only be allowed with the Resident Engineer’s written permission. On no account shall plaster of parts be used to effect repairs.

### Cement Paving’s and Screeds

Cement paving and screeds shall consist of cement and sand unless otherwise specified in the proportion 1:2 by volume. They shall be laid in panels with a detailed pattern approved by the Resident Engineer and unless otherwise directed finished with a steel trowel. Where specified as waterproof an approved waterproofing compound shall be added to the Where cement paving’s or screeds strictly in accordance with the manufacturer's instructions.

Practicable, screeds are to be laid while the concrete is still green. When this is not practicable the concrete is to be well washed and brushed perfectly clean with a steel wire brush, to remove all laitance and to give a roughened face as a key and then kept wet for at least seven days before the screed is laid. On the day of laying the surface is to be only damp with all surplus water removed and has to be painted with cement and sand mix 1:1 grout immediately before commencing laying of the screed. The grout is to be applied continuously in front of the screed and not in large areas that will dry out before the screed is applied.

Screed and paving shall be projected during the first stage of hardening from the harmful effects of sunshine, drying winds, rain or water. In exposed positions the screed and paving shall be covered with a well wetted layer of sawdust, hessian or other approved material and this layer shall be damp for at least seven days, during which period no traffic is to bellowed over the screed or paving. The work shall further be protected against damage to the satisfaction of the Resident Engineer until the Works are handed over to the Employer.

### Surface Treatment of Concrete Floors and Slabs

a) **Steel trowelled finish**

Surfaces of beds and slabs to receive this flexible sheet and tile pavings bedded in adhesive and seatings for beaming plates and the like where the metal is in direct contact with the concrete shall have a hard smooth steel-trowelled finish. Trowelling shall not commence until the moisture film has disappeared and the concrete has hardened sufficiently to prevent excess laitance from being worked to the surface. The surfaces shall be trowel led under firm pressure and left free from trowel marks.

b) **Floated Finish**

Surfaces of beds and slabs to receive mastic pavings or block or tile pavings bedded in masticand exposed surfaces of pavings where a hard smooth steel trowelled surface is not required shall be floated finished. Floating shall be done only after the concrete has hardened sufficiently and may be by hand, by wood float, or machine. Care must be taken that the concrete is worked no more than is necessary to produce a uniform surface free from screed marks.

c) **Screeded Finish**

Surfaces of roads or of foundations bed slabs and structural members to be covered by backfill, subsequent stages of construction, bonded concrete topping or cement mortar beds to receive pavings and on exposed surfaces of paving where a superior finish is not required shall be of screeded finish. This is also the first stage for finishes described under a) and b) above. The finishing operations will consist of levelling and screeding the concrete to produce a uniform, plain or where so directed ridged surface, surplus concrete being struck off by a straight edge immediately after compaction.

d) **Tolerance**

Tolerances regarding departure form alignment and grade as shown in the contract are for surfaces as described under a) and b) ±3mm and c) ±10mm. The tolerance in deviation from 2 meters template in long dimensions is likewise for a) and b) ±3mm and for c) ±10mm.

e) **Special Surface Treatment**

Concrete floors may be provided with a granolithic or terrazzo-wearing surface as detailed on the Drawings and the Bill of Quantities. Prior to the laying of any wearing surface all pumps and associated control gear and equipment shall be installed and tested and all areas to receive wearing surface cleaned and washed and all oil and grease removed.

• Granolithic wearing surfaces shall consist of two parts cement and five parts of aggregate by volume and shall be finished with a smooth trowel led surface. The granolithic hardener shall be applied and treated in strict accordance with the manufacturer’s instructions. The surface shall be kept damp and protected as for screed and paving. Where so directed a non-slip finish shall be made by sprinkling carborundum(1.35 kg per m2 ) over the surface before it has set and trowelling well in.

• Terrazzo floor shall be laid in accordance with BS 204. The work shall unless otherwise stated in the contract be carried out by an approved specialist Sub-contractor employing labor skilled in terrazzo.

**Tiling**

a) **Wall tiling**

Wall tiling shall be in accordance with BS CP 212. Where glazed wall tiles are to be used the walls shall first be well cleaned and all dust and loose or projecting mortar removed. Walls shall then be well soaked and a 16mm screed of1:3 mortars applied and the surface scratched with a metal comb to provide a key. Tiles shall be well soaked in water and a layer of 1:2 cement mortar 6mm thick plastered on to the wall and tapped home. Joints, 3mm wide, shall be neatly pointed with white cement and left slightly recessed. Horizontal and vertical joints shall be straight. Cope tiles and cove tiles shall be used as necessary.

b) **Floor Tiling**

Floor tiling shall comply with BS CP 202. Thermoplastic tiles shall be laid in accordance with the manufacturer’s instruction. Terrazzo tiled floors shall consist of precast terrazzo tiles of approved size, color and texture. Areas of floor to be terrazzo tiled shall be clean and free from dust and other foreign matters, well wetted with clean water and screened with a 20 mm thick 1:6 cement and sand mortar.

Tiles shall be well soaked in clean water and, whilst the screed is still green, laid on a 6mmthick bed of 1:3 cement and sand mortar to the levels shown on the Drawings. All joints shall be filled with a 1:1 cement and sand grout. After lying, the surfaces of the tiles shall be thoroughly cleaned to the satisfaction of the Resident Engineer. Thereafter, terrazzo tiled floors shall be ground off to the satisfaction of the Resident Engineer and shall be protected until the work is handed over to the Employer. At junctions of floor tiling with walls, plinths etc. coved tiles shall be used.

## PAINTING

The Contractor shall supply all paints, primers, varnishes, distemper, and oil etc., ready mixed in original sealed containers bearing the brand maker's name identifying the contents and giving directions for its proper use. They shall be used strictly in accordance with the manufacturer's instructions. Painting materials shall be of the best quality products of recognized manufacturers, and shall be subject to the approval of the Resident Engineer. Painting materials shall not be diluted but two different original paints may be mixed to produce the required color when not available by it, and this shall be done according to the Resident Engineer's instructions.

All surfaces to be painted shall be adequately cleaned and prepared to the satisfaction of the Resident Engineer and shall be dry prior to being painted. The paint shall be well and evenly brushed on, the brushes used being of the correct sizes for the work. One coat shall always bellow to dry thoroughly and sufficiently harden before the next coat is applied.

For painting done in several coats each shall be of a different shade or color from the others. Any cracks in walls shall be cleaned, filled and puttied up then left to dry before application Of paint. Any cracking in timber shall receive putty and shall be smoothed by sand paper before application of paint. All hardware and furniture for doors and windows, together with any exposed electrical installations in walls shall be removed before paintwork commences. Upon completion of all paintwork all such hardware and furniture etc. shall be re-installed and left in good working order.

Floors, walls and adjacent items shall be covered as protection against staining by paint. If in the opinion of the Resident Engineer any painting is unsatisfactory the surface shall be cleaned and repainted. All colours shall be approved by the Resident Engineer. Timber shall be well rubbed with sand paper until it is rendered smooth. All timber shall be painted with an undercoat of ready mixed oil paint. When dry, the undercoat shall be well rubbed down with sand paper. A second coat of the same ready mixed oil paint shall be applied. A final coat of gloss paint shall be applied leaving no brush traces or irregularities.

Non-galvanized steelwork and metalwork shall be rubbed and cleaned by wire brushes and in addition to any shop prime coat shall be primed with red lead of the best quality, followed by a coat of oil paint used for metal works and two coats of medium oil alkyd enamel. All ceilings and rendered walls of buildings, both internal and external shall be painted with emulsion paint. Where surfaces show salt deposits or efflorescence, the Contractor shall carefully neutralize them with a solution of 2 kg of zinc sulphate crystals dissolved in 5 litres of water brushed on and left to dry. Emulsion paint shall be polyvinyl acetate (PVA) type obtained from an approved manufacturer and shall be applied strictly in accordance with the manufacturer’s recommendations. Emulsion paint shall be applied in one primer and two Finishing coats.

## PLUMBING

### Plumbing General

The plumbing shall be carried out only by person(s) holding a current license issued by the licensing authority and in strict accordance with the Local Authorities’ by-laws and to the satisfaction of the Resident Engineer. Before commencing of the fixing, pipes and fittings shall be set out in the positions shown on the Drawings for the approval of Resident Engineer. Pipes shall be positioned to sufficient falls to prevent air locks and to enable the system to be drained through the draw-offs and drainage taps provided. Provision for thermal movement shall be made.

The Contractor shall be responsible for providing, inspecting, cleaning, storing, fixing and testing of all the plumbing material. On completion, the whole of the plumbing work shall be tested and the water distribution system sterilized to the satisfaction of the Resident Engineer and in accordance with his instructions. Any materials or workmanship not to his satisfaction shall be replaced or re-executed all at the Contractor's own expense.

All fittings shall be protected against misuse by workmen employed on the building works and any defective, soiled or broken fittings shall be replaced at the Contractor's own expense. Fittings shall generally be to the appropriate British Standard and shall be of a type, quality and manufacture specified in the Drawings and Bill of Quantities and approved by the Resident Engineer.

Pipes shall be in the maximum lengths possible to avoid unnecessary jointing. Bending of pipes shall not be carried out on site unless approved by the Resident Engineer and recommended by the manufacturer of the pipe. Half hard light gauge copper pipes but not hard drawn thin wall pipes may be bent on an approved machine to an internal radius not less than eight times the outside diameter of the pipe.

Unions shall be incorporated in the water supply system in order to facilitate easy repair and augmentation to the system. All cutting shall be clean and square and made by equipment appropriate to the material. No burrs, feathers or joining material shall be allowed to project into the bore of the pipe.

The tubing for hot and cold water services, waste and overflow pipes etc. Is in this Specification generally described as for galvanized mild steel tubing. The Contractor may use copper tubing in place of galvanized tubing for cold water services. However if copper tubing is adopted the Contractor is deemed to have allowed in the Tender for copper to copper couplings, bends, tees etc. and copper to iron couplings.

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### Installation, Fixing and Insulation

a) **Workmanship generally**

Piping within the building shall generally be accessible for inspection, replacement, repair and operation. Access for cleaning the whole of every run of waste pipe and soil pipe shall be provided using proprietary access fittings. Cutting, chasing or notching any part of the structure is not allowed unless the prior approval has been obtained from the Resident Engineer.

Pipes shall be temporarily sealed off to prevent the entry of foreign-matter into any part of the system. All access covers and cleaning eyes shall be fitted as the work proceeds. Sleeve pieces shall be used for the total thickness of walls or slabs through which pipes are passed. Pipes passing through walls and slabs shall be wrapped with a layer of inert material. Overflow pipes passing through walls shall run at a slight fall.

b) **Joints and connections**

Galvanzed steel pipes with screwed sockets shall be screwed together using jointing compound or approved proprietary pipe thread tape. Long screws and any other untaperedthreads shall have yarn as well as jointing compound incorporated in the joint. Threads on pipes to be buried shall be thickly coated with bitumen.

Soil, waste and vent cast iron spigot and socket pipes shall be jointed with firmly caulked tarred yarn and caulked molten lead or fibrous lead yarn. Connection between steel and iron pipes shall be by copper unions or union ferrules for small bare pipes and by flanged connecting pieces for large bore pipes. Copper pipes above ground shall be jointed with capillary or non-manipulative compression fittings in accordance with manufacturer's recommendations.

Copper pipes below ground shall be jointed with manipulative compression fittings in accordance with manufacturer's recommendations Copper pipe joints to iron or steel pipes in water supply systems shall be by copper unions or copper ferrules for diameters less than 38mm and by screwed, brazed or welded copper flange on copper pipe to steel flange jointed with copper alloy bolts and nuts for diameters of38 mm and over.

Copper pipe joints to cast iron sockets in soil systems shall be with capillary or compression fittings to copper caulking bushes. The joint shall be caulked with yarn and lead or cold cementations caulking compound. Copper pipe joints to concrete, ceramic or asbestos cement sockets in soil systems shall be with copper sleeve brazed or soldered to copper pipe and jointed with yarn and cement sand mortar.

uPVC pipe joints shall be in accordance with the manufacturer's recommendations using either synthetic rubber ring system or solvent welding system. Adaptors supplied by the uPVC pipe manufacturer shall be used for connections to pipes of other material. Polythene pipes shall be jointed in accordance with manufacturer’s recommendations. Connections to pipes and fittings of other material shall be in accordance with the recommendations of the manufacturer of the Polythene pipes. Elbows may only be used in pipes of 19mm diameter or less and not on hot water systems of any description.

Connection of steel pipes in water supply system to sanitary fittings shall be made with a 45cm length of half hard light gauge copper tubing bent to shape as required with copper to iron couplings at each end. Connection to copper pipe shall be with compression fitting. No lead containing compounds shall be used for joints and connections in drinking water systems.

c) **Fixing**

Generally pipes and fittings shall be securely fixed in accordance with their manufacturer's recommendations using fixing and fastenings appropriate to the location and material. All fixing shall be to the Resident Engineer's satisfaction.

Fixings shall be placed at each socket and at centres not exceeding 1800mm on pipes of asbestos cement, cast iron and galvanized steel. In chases the distance between centres shall not exceed 1300mm.

Galvanized mild steel pipes and copper pipes of small diameter shall be fixed at centres not exceeding 1200mm. Pipes requiring paint treatment or other protection coatings shall be fixed with a minimum clearance of 32mm from the face of the structure. Where so specified, pipe boards shall be supplied and fixed to the wall.

d) **Insulation**

Pipes placed in ducts under the floor shall be lagged. Where lagging is in danger of becoming damp it shall be painted or otherwise suitably protected. Where lagged pipes are mounted on painted walls etc. The lagging shall be wrapped in asbestos tape and painted to match the background.

e) **Ventilation of waste system**

At the head of each main drain a vent pipe of the full diameter of the main shall be fixed and brought up through the roof at least 450mm above eaves level. The vent pipe shall not be nearer any opening light or ventilator than 3 meters. The vent pipes shall be fitted with galvanized steel wire balloons or where plastics vent systems is used with suitable approved plastics balloons.

Where a pipe passes through a roof the Contractor shall provide a 24 gauge galvanized sheet metal flashing of approved size to suite the roof dressed tightly against pipe and over and under roof finish and sealed to the Resident Engineer’s satisfaction.

f) **Installation of Storage Tanks and Heaters**

Tanks and cisterns shall be supported at points recommended by the manufacturer and to the approval of the Resident Engineer. Plastics tanks and cisterns shall be fully supported under the whole of the bottom area. Where tanks and cisterns are to be supported on continuous surfaces, even bearing plates shall be arranged. Installation of heaters and hot water cylinders shall be strictly in accordance with the manufacturer’s instructions.

g) **Installation of Rain Water Gutters**

Fixing and jointing of gutters

Gutter brackets shall be fixed to timber by screwing and to block work or masonry by plugging and screwing. Gutters shall be fixed to falls not less than 10mm in 3 meters unless otherwise shown on the Drawings or directed by the Resident Engineer. Overlapping shall be in the direction of fall. Supporting brackets shall be fixed at centers not exceeding 900mm. Where asbestos cement gutters of valley, boundary wall and box pattern, are used the distance between centres of brackets shall not exceed 300 mm.

Asbestos cement gutters joints shall be bolted together tightened by either mastic, yarn gasket and mastic or rubber pads as recommended by the gutter manufacturer.

Light pressed steel gutters shall be jointed with mastic and bolted together. Plastics gutters Shall be jointed in accordance with the manufacturer's recommendations.

### Fixing and jointing of pipes and fittings

Fixing and fastenings shall be appropriate to the location and materials. Pipes shall be fixed with a 40mm clearance to the wall faces unless otherwise shown on drawings or directed by the Resident Engineer.

### Testing of rainwater goods installation

The testing shall be carried out under the supervision of the Resident Engineer and to his satisfaction. Records of all tests shall be kept. The Contractor shall provide clean water for the testing. The tests shall show that gutters are laid to correct falls and that pipes and gutters are free from obstructions. Internal pipes shall also be tested for water tightness at a head of 1.5m water pressure. Defects shall be located and made good and retesting shall be carried out to the satisfaction of the Resident Engineer.

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### Sanitary fittings

Where directed or shown an the Drawings, the Contractor, shall supply, assemble and fix sanitary fittings as described below allowing for the provision of jointing material, mortises, plugs screws etc. Sanitary fittings shall be manufactured by manufacturer approved by the Resident Engineers.

a) **Pedestal Type WC Suite (Low Level)**

Pedestal type W.C suite comprising white glazed vitreous china pan to GS 5503 hinged block plastic seat to BS 1254 complete with rubber buffers white glazed vitreous 14 litre valve less flushing cistern to BS 1125 supported on pair of white porcelain enamelled brackets 40.0mm diameter white porcelain enamelled iron flush pipe with approved rubber cone joint to pan and chromium plated union to cisterns.

b) **Pedestal Type WC Suite (High Level)**

As above but with ‘P’ trap white glazed vitreous china pan and approved 9 litres plastics or other type cistern and all necessary fittings as directed by the Resident Engineer.

c) **Squatting Type WC**

Of approved manufacture 'With 9 litres cistern including all necessary fittings. The pedestal type pan shall be fitted above the floor level in all cases.

d) **Washing Basin**

White glazed basin to BS 1188 with combined waste and overflow complete with 12.7mm chromium plated pillar valve to BS 1010 marked "cold" fixed in tap hole provided, with fiber washer, chromium plated waste, rubber plug and chromium plated chain and stay, supported on a pair of porcelain enamelled brackets. Where hot water system is included an additional valve marked ‘hot’ or a combination valve shall be connected.

e) **Stainless Steel Sink**

Stainless steel sink to BS 1244 with draining board, work slab and back ledge, overall size as specified in the Contract or as directed with combined waster and overflow and complete with 19mm diameter chromium plated pillar valve to BS 1010 marked "cold" fixed in tap hole provided with fiber washer, rubber plug and chromium plated chain and stay, fixed an angle iron brackets.

f) **Brackets and Supports**

Cantilever brackets and other supports for sanitary fittings shall be obtained from the supplier of the sanitary fittings in use and shall be of a size and pattern appropriate to the fitting and to the walls on which they are to be fixed. Purpose made metal support may be used only with the Resident Engineer's approval and shall then be fabricated as the Resident Engineer directs and to his complete satisfaction.

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### Testing of Plumbing

On completion of construction installations shall be tested as follows.

a) Internal Water Service System

All internal water service pipe system installed above ground shall be tested hydraulically for a period of 30 minutes to not less than two times the working pressure or for such period and to such pressure as specified in the Contract. If preferred, the Contractor may test the pipe lines in sections. Any such section found to be satisfactory, need not be the subject of a further test when the system has been completed, unless specifically instructed by the Resident Engineer.

During the test, each branch and joint shall be examined carefully for leaks and any defects revealed shall be made good by the Contractor and the section re-tested at his expense. The Contractor must take all necessary precautions to prevent damage occurring to special valves and fittings during tests. Any item damaged must be repaired or replaced at the Contractor's expense.

b) Soil, Waste and Ventilation System

All soil, waste and ventilating pipe systems forming part of the above ground installation shall be given a smoke test to a pressure of 38mm of water gauge and this pressure shall remain constant for a period of not less than three minutes. This pressure and test duration may be varied as specified in the Contract. Water tests on above ground sail, waste and ventilating pipe systems will not be permitted. Pressure tests shall be carried out before any work which is to be concealed is finally enclosed.

Any defects revealed by the tests shall be made good by the Contractor and the test repeated to the approval of the Resident Engineer, all at the Contractor's expense. In all other respects, test shall comply with the requirements of BS 5572.

c) Operational Tests

Following satisfactory pressure tests on the pipe work systems, operational tests shall be carried out in accordance with the relevant BS Code of Practice on the systems as a whole to establish that special valves, gauges, controls, fittings, equipment and plant are functioning correctly to the satisfaction of the Resident Engineer.

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### Sterilization of Plumbing

All above ground water distribution systems, cisterns, tanks, pumps etc. shall be thoroughly sterilized and flushed out after the completion of all tests and before being fully commissioned for handover.

The sterilization procedure shall be carried out by the Contractor or specialist Employed by the Contractor to the approval of the Resident Engineer and in accordance with BS CP 310. Before sterilization the water system shall be thoroughly cleaned and washed out and all water from these operations shall be removed and drained away. Following the satisfactory cleansing, a solution of a sterilizing chemical containing chlorine shall be introduced into the pipeline with the use of a portable dosage system or by some other approved method. The solution shall be introduced at a very slow rate and shall unless otherwise specified be of such strength as to give a chlorine concentration of not less than 50 mg/litre throughout the pipelines.

All taps in the distribution pipes shall be opened successively, working progressively away from the place where the solution is introduced. Each tap shall be closed when the water discharged begins to smell of chlorine. The whole system shall then remain charged for 24 hours, after which a test shall be made for residual chlorine. If no residual chlorine is found, the sterilization process will have to be carried out again, until satisfactory result is obtained. Finally, the pipes shall be thoroughly flushed out and recharged with supply water. On completion of the sterilization process, the pipes shall be left full of water.

**GLASSING**

### Glassing General

Glassing shall be executed in accordance with BS 6262. Glass shall be of the weight, thickness and quality specified in the Contract.

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### Glassing to Wood and Metal Frames

Wooden rebates of windows shall be painted one undercoat before puttying. Rebates of metal frames shall be prepared and treated with primer for putty. All glassing to wood frames shall be secured with wire glassing pins and to metal frames with spring glassing clips .All glass shall be properly back puttied and the front putty, finished neatly and cleanly in line with back putty.

### Glassing of Glassed Doors

Glass in glassed doors shall be bedded in wash-leather or other approved proprietary strips, cut to fit the exact line of the fixing beads. Glassing beads shall be secured with brass cups and screws.

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### Completion of Glassing

On completion all glassing must be sound and watertight. All broken, scratched or cracked panes shall be removed and replaced to the Resident Engineer’s satisfaction. All glass shall be cleaned inside and outside with approved liquid cleaner. On no account shall windows be cleaned by scraping with glass.

## MISCELLANEOUS ITEMS

### Structural Steel

All structural steel work shall be of mild steel confirming to ISO4952. All sections shall be at least equivalent to those shown in ISO272. Ends of beams and joints, etc. shall be cut to exact lengths true and square and shall be cleaned of burrs or rough edges. Drilled or punched holes shall not be greater than 1/16"more than the bolt diameter and they shall be cleaned of burrs and rough edges. Punching of holes shall be allowed for plates thinner than 8 mm.

Prices for all mild steel shall include for removing all rust and mild scale and applying one coat of red lead or other approved priming paint to all surfaces before vising. Following erection, all structural steel not galvanised shall receive three coats of lead paint and be finished in an approved colour.

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### Bolts, Nuts and Washers

Bolts, nuts and washers shall conform to ISO4759 threaded to ISO261. Washers shall be toISO887 except that the outside diameter shall be at least 2.5 x the bolt diameter. Tapered washers shall be supplied where required. Where specifically called for, nuts, bolts and washers shall be electroplated. For belowground environments including chambers, the electroplating shall be to BS3382 Part 5/6. Elsewhere it shall be to BS3382 Part 2/3.

### Hot Dip Galvanizing

All hot dip galvanizing shall conform to BS5493.

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### Step Irons

All step irons shall conform to BS1247 - General Purpose Pattern. The weight of each step iron shall be at least 2.15 kg.

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### Access Ladders

Internal and external access ladders shall be mild steel galvanised where new ones are required and shall be provided adjacent to access manholes. External ladders shall be fitted with a safety cage where none exists on the tanks to be refurbished.

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### Fresh Air Ventilators

Where none exist two fresh air ventilators shall be fixed to the roof of each compartment. They shall be cowled to prevent rain from entering and fully mosquito-proofed with fine meshed gauze all fixed to the satisfaction of the Resident Engineer.

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### Float Level Indicator

Float level indicators shall be attached to the side of each compartment with vitreousenamelled scales graduated at intervals of 0.5 metres and clearly marked in indelible paint. Pointer and float shall be connected by a nylon cable. Guides for the cable shall be provided to prevent snagging or fouling of cable travel.

## 

## PAINTING OF METALWORK

### General

All work shall be carried out in accordance with BS22063, 4147 and 5493, as appropriate. All paints shall be obtained from an approved manufacturer, and applied strictly in accordance with the manufacturer's instructions. The source of supply shall not be altered without the Resident Engineer’s approval.

The colour of the paints used shall be to the Resident Engineer’s approval and where possible alternate coats shall be of different shades. Where blast cleaning is specified prior to painting, the cleaned surfaces shall conform to First Quality finish to BS7079. All preparation and painting shall be carried out under dry conditions and on completely clean and dry surfaces.

All preparation and painting at manufacturers works shall be carried out under cover at a controlled ambient temperature in the range 15 to 21 degrees C. Site painting shall not proceed when the ambient temperature falls below 10 degrees C. Where surfaces are joined during fabrication, they shall be brought together while the final protective coat is still wet.

After welding and fabrication, all weld areas shall be thoroughly cleaned and touched up as specified with the appropriate priming system. Coatings and paints used for all structures, including tanks, pipes, valves, flow meters, fittings etc. which are in contact with potable water shall be non-toxic, and shall not foster microbiological growth or give rise to taste, odour, turbidity or discoloration of the water with which they are, or could be in contact. The Resident Engineer reserves the right to inspect all work prior to painting, and reasonable access shall be given for such inspection at any stage of the work.

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### Site Painting

Equipment or plant that has to be refurbished on site shall be manually cleaned to the in compliance with BS22063, 4147 and 5493 as appropriate.

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### Types of Paint Protection

TYPE A (Hot Dip Galvanized)

(a) Blast cleans to first quality finish to BS7079.

(b) Hot-dip galvanized to give a minimum coating weight of 610 g/m¨ in accordance withBS729.

Finish dry film thickness shall both be less than 85 microns for metals in interiors of buildings and normally dry condition, and 140 microns for other conditions.

NOTE :All fastenings including bolts, for use with materials having a Type A finish shall be sterilized in accordance with SSRN 934.

TYPE B (Zinc Rich 2-Pack Epoxy Primer and Heavy Duty Epoxy Coal Tar)

(a) Blast cleans to First Quality finish to BS7079.

(b) Within 2 hours of blast cleaning apply by airless spray one coat of 2-pack zinc rich epoxy primer, to a finished dry film thickness of not less than 50 microns.

(c) Apply by airless spray one coat of 2-pack zinc epoxy primer as in (b) above to finished thickness of not less than 100 microns.

(d)Apply by airless spray two coats of high build epoxy coal tar, to a final finished dry film thickness of not less than 350 microns.

TYPE C

As type B above but with sufficient number of coats in (d) to give a final finished dry film thickness of not less than 450 microns.

TYPE D (2-Pack Zinc Rich Epoxy Paint)

* + 1. Blast cleans to First Quality finish to BS7079.
    2. Within 2 hours of blast cleaning apply by airless spray one coat of 2-pack zinc rich epoxy primer all as in Type B part (b) above.
    3. Apply two coats of 2-pack zinc rich epoxy high build matt finish dry film thickness of not less than 300 microns.
    4. Apply final coat of 2-pack epoxy gloss finish of approved shade to produce a total finished minimum dry film thickness of 350 microns.

Application shall be by airless spray and a minimum of 16 hours shall be allowed between coats.

TYPE E (Epoxy Paint)

* + 1. Blast cleans to First Quality finish to BS7079.
    2. Within 2 hours of blast cleaning, apply by airless spray one coat of high build 2-packcold cure epoxy resin primer to give a finished dry film thickness of 125 microns.
    3. After a period of not less than 8 hours from the first coat (`b' above), a finish coat of high build pure epoxy shall be applied by airless spray to give a total dry film thickness of not less than 350 microns.

TYPE F (Epoxy Primer and Chlorinated Rubber Paint)

* + 1. Blast cleans to First Quality finish to BS7079.
    2. Within 2 hours of blast cleaning, apply by airless spray one coat of 2-pack zinc rich epoxy primer to give a finished dry film thickness of 50 microns.
    3. Apply 2 coats of 2-pack zinc epoxy high build to a matt finished dry film thickness of300 microns.
    4. Apply one coat of chlorinated rubber paint of approved shade to a gloss finished dry film total thickness of not less than 350 microns.

TYPE G (Chlorinated Rubber Paint) - Brush Application

* + 1. Blast cleans to First Quality finish to BS7079.
    2. Apply 2 coats of chlorinated rubber paint primer to give a finished dry film thickness of 100 microns.
    3. Apply 2 coats of chlorinated rubber based high build undercoat to give a finished dry film thickness of 220 microns.
    4. Apply 2 coats of chlorinated rubber base gloss finish of approved shade to give a total dry film thickness of 280 microns.

TYPE H (Chlorinated Rubber Paint) - Airless Spray Application

* + 1. Blast cleans to First Quality finish to BS7079.
    2. Apply 2 coats of chlorinated rubber based high build primer to give a finished film thickness of 150 microns.
    3. Apply 2 coats of chlorinated rubber based high build semi-gloss finish of approved shade to give a total dry film thickness of 300 microns.

TYPE J (Lead Primer and Epoxy Paint)

* + 1. Blast clean First Quality finish to BS7079.

1. Within 2 hours of blast cleaning apply one coat of 2-pack epoxy metallic lead primer to give a finished dry film thickness of 50 microns.
2. Apply 2 coats of 2-pack epoxy micaceous iron oxide undercoat to give a total dry film thickness of 150 microns.
3. Apply one coat of 2-pack epoxy gloss finish of approved shade to give a total dry film thickness of not less than 180 microns.

TYPE K (Lead Primer and Epoxy Paint for Galvanized Metal)

(a) Thoroughly clean and degrease.

(b) Apply one coat of 2-pack epoxy metallic lead primer to give a finished dry film thickness of 50 microns.

(c) Apply one coat of 2-pack epoxy micaceous iron ore undercoat to give a finished dry Film thickness of 120 microns.

(d) Apply one coat of 2 pack epoxy gloss finish of approved shade to give a total dry film thickness of not less than 155 microns.

TYPE L (Bitumen Coating)

(a) Blast clean to First Quality finish to BS7079or pickle in hot dilute sulphuric acid.

(b) After thorough washing, phosphate coating by immersion in a bath of hot dilute phosphoric acid.

(c) Application of one coat of primer to BS4147.

(d) Hot dip bitumen/bitumen coating applied to give a smooth lining having a minimum dry film thickness of not less than 300 microns.

TYPE M (Electro-Zinc Plated and Stove Enameled)

(a) Blast clean to First Quality finish to BS7079or pickling in hot dilute sulphuric acid.

(b) After thorough washing, phosphate coating by immersion in a bath of hot dilute phosphoric acid.

(c) Electro zinc plated.

(d) Apply stoved zinc based epoxy primer (incorporating suitable pigments to act as acid scavengers and counteract the formation of adhesion destroying compounds).

(e) Finishing coat(s) of stoved alkyd enamel to give a high standard of gloss finish of approved shade, and of not less than 150 microns dry film thickness.

TYPE N (Clean and Degrease)

Thoroughly clean using hand, and/or power tools where available, to remove all mill scale, rust and grease.

TYPE P (Lead Primer)

(a) Blast cleans to First Quality finish to BS7079.

(b) Within 2 hours of blast cleaning apply by brush two coats of metallic lead primer to a Finished thickness of not less than 100 microns.

TYPE Q (Bitumen Enamel or Coal Tar Enamel Wrappings)

Apply bitumen enamel wrapping or coal tar enamel wrapping in accordance with DIN30674.

TYPE R (Sealed Sprayed Aluminium Coating)

(a) Blast clean to First Quality finish to BS7079.

Surface preparation shall be in accordance with to BS22063.

(b) Apply suitable primer.

(c) Apply sprayed - aluminium coating to give a finished dry film thickness of not less than150 microns.

(d)Apply suitable pre-treatment primer (e.g. Two-pack polyvinyl butyral or Two-packpolyvinyl butyral/phenolic, containing not less than 85% by weight of zinctetroxychromate pigment).

(e) Apply suitable sealer e.g. (Blend of vinyl chloride/acetate copolymers, or Two-packphenolic binder or Two-pack epoxy or Two-pack polyurethane).

TYPE S (Sealed Sprayed Zinc Coating)

(a) As in (a) type R.

(b) As in (b) type R.

(c) As in (c) type R but using sprayed zinc coating to give a finished dry film thickness of not less than 175 microns.

(d) As in (d) type R.

(e) Apply suitable sealer e.g. silicone resin containing not less than 95% by weight of aluminium pigment.

TYPE T (Decorative Painting)

Decorative paint (when specified) shall be compatible with the final finish paint or coating. The final shade shall be as recommended by the Resident Engineer. The film thickness of decorative paint shall not be included in the total dry film thickness specified.

### Repair of Damaged Paintwork Coatings

Any damage to the protective coating shall be made good as soon as possible, and shall not be left until the time of metal finish painting. Damaged areas shall be cleaned down to bright metal by power wire brushing or sanding and feathered off to the surrounding area. A new protective system approved by the Resident Engineer shall then be applied generally following the requirements of the system originally applied, modified if necessary to comply with the recommendations of the manufacturer of the protective materials used.

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### Metalwork Surface Preparation Prior to Painting

Surface preparation shall conform generally to BS22063, 4147 and 5493 as appropriate, together with any additional preparation recommended by the paint manufacturer, and/or approved by the Resident Engineer. Prior to painting, protective coatings shall be thoroughly cleaned, degreased, and washed with clean water. Where steelwork has been delivered with zinc rich epoxy primer and has been allowed to weather, the primed surface shall be washed with clean water to remove zinc salts and allowed to dry.

### Site Painting During Erection of Metalwork

Site connections shall be given a second coat and be brought together wet. Where the finishing paint has been subject to damage during transit or erection, the areas affected shall be cleaned, repaired, and re-painted generally following the requirements of the system originally applied.

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### Chemical Waterproofing of Concrete

Should it become necessary or if indicated in the Bills of Quantities or directed by the Resident Engineer, the Contractor shall apply a concrete waterproofing chemical to concrete surfaces. For surfaces in contact with potable water, such a chemical shall have been certified as suitable for use in potable water retaining structures by competent and internationally recognised authorities.

Products acceptable include waterproofing chemicals consisting of rapid hardening Portland cement, oven-dried quartz sand and active inorganic chemicals of a type that upon application to a concrete surface a crystal chain reaction starts as the active chemical ingredients react with the free lime and water in the concrete capillaries resulting in the formation of insoluble crystals which drive out the surplus capillary water ensuring a permanently water tight concrete but which however at the same time allow the concrete to breath.

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### Insulation of Dissimilar Metals

Where dissimilar metals are likely to be in contact with each other a suitable insulating barrier shall be incorporated to prevent galvanic action occurring. This shall be to the approval of the Resident Engineer.

## REPAIRS TO CONCRETE WORKS

### Repairs to Chemically Eroded Internal Walls using Epoxy Resin

For mildly eroded surfaces the internal wall surfaces shall be thoroughly cleaned wire brushed and freed from any oil, grease, cement laitance and loosely adhering particles. The surfaces shall then be wetted well. A repair mix comprising cement mortar consisting of cement and clean sharp fine sand all as specified and mixed in the ratio 1:3 by volume shall then be applied uniformly over the damaged surface. A new uniform screed 4 mm thick shall be formed all over the entire surface of the internal walls.

The new cement screed shall then be left to set for a minimum period of 3 weeks after which a coat of chemical resistant epoxy resin coating shall be applied uniformly over the entire surface. The epoxy resin will be applied in three coats by use of a brush or roller to achieve a minimum dry film thickness of 0.6 mm.

The epoxy resin shall be allowed 4 days to dry before the water retaining structure is recommissioned.

### Repairs to Chemically Eroded Internal Walls Using Synthetic Rubber Emulsion

For severely eroded surfaces the internal wall surfaces shall be thoroughly cleaned wire brushed and freed from any oil, grease, cement laitance or loosely adhering particles. The surfaces shall then be wetted well. A bonding coat comprising an approved synthetic rubber emulsion, mixed with water in a 1:1 ratio shall then be brushed into the prepared surface. A repair mix comprising cement mortar mixed with the same approved synthetic rubber emulsion shall then be applied in layers uniformly over the damaged surface while the bonding coat is still wet, ensuring that it is worked into any cracks and spread to give the appearance of a smooth surface.

The first layer being 4 mm thick and the next subsequent layers each 6 mm thick. A new uniform screed 16 mm thick shall be formed all over the entire surface of the internal walls. The quantities of the synthetic rubber emulsion to be mixed with the cement mortar will depend on the cement: sand and water: cement ratios. For the production of a repair mix with good workability properties, the sand particle sizes shall be limited. The new screed shall be allowed 14 days to dry and set before the water retaining structure is re-commissioned.

SPECIFICATION FOR REINFORCED CONCRETE WORK

1. GENERAL
2. ARCHITECT/ENGINEER

For the purpose of the concrete structure the Structural Engineer shall be deemed vested with the duties and be the representative of the Architect.

1. CODE OF PRACTICE

All workmanship, materials, tests and performances in connection with the reinforced concrete work are to be in conformity with the latest edition of the British Standard Code of Practice (C.P. 114 for “The Structural Use of Reinforced Concrete in Buildings) where not inconsistent with these Preambles.

1. SUPERVISION

A competent person approved by the Engineer shall be employed by the Contractor whose duty will be to supervise all stages in the preparation and placing of the concrete. All cubes shall be made and Site tests carried out under his direct supervision, in consultation with the Engineer.

1. CONTRACTOR’S PLANT, EQUIPMENT AND CONSTRUCTION PROCEDURES

Not less than 30 days prior to the installation of the Contractor’s plant and equipment for processing, handling, transporting, storing and proportioning ingredients, and for mixing, transporting and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangement, together with a general description of the equipment he proposes to use.

After completion of installation, the operation of the plant and equipment shall be subject to the approval of the engineer.

Where those Preambles, the Bills of Quantities or the Drawings require specific procedures to be followed, such requirements are not to be construed as prohibiting use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of the Engineer, that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provision or requirements contained in these Preambles governing the quality of the materials of the finished work.

1. LEVELS AND FOUNDATIONS

The foundations of the Works shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and the solid ground excepting where otherwise shown must be carefully filled in as directed by the Engineer.

All temporary timbering shall be removed but should any timber be left in or should any other work be done beyond that specified, it will be at the Contractor’s own cost.

1. TOLERANCE

On all setting out dimensions of six metres and over a maximum non-accumulative tolerance of plus or minus 6mm will be allowed. On all setting out dimensions under six metres a maximum non-accumulative tolerance of plus or minus 3mm will be allowed. On the cross sectional dimensions of structural members, unless otherwise required by the Drawings, a maximum tolerance of plus or minus 3mm will be permitted.

The top surface of concrete floor slabs and beams shall be within 6 mm of the normal level and line shown on the Drawings. Columns shall be truly plumb and non-accumulative tolerance of 3 mm in each storey and not more than 12 mm out of plumb in their full height will be permitted. The Contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

1. MATERIALS GENERALLY

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these Preambles shall be rejected and shall be removed immediately from the Site at the Contractor’s own expense. No materials shall be stored or stacked on suspended floors without the Engineer’s prior approval.

1. SAMPLES AND TESTING

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of materials or construction do not comply with the requirements of these Preambles, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

1. CEMENT

Cement unless otherwise specified shall be Portland Cement of a brand approved by the Engineer and shall comply with the requirements of B.S. 12, with the exceptions that it may contain reactive volcanic ash of not more than 10% of the total weight and the quantity of insoluble residue permitted in B.S. 12 may be exceeded on this account only. A manufacturer’s certificate of Test in accordance with B.S. 12 shall be supplied for each consignment delivered to the Site.

Should the Contractor require to use cement of the Rapid Hardening variety, he shall obtain the approval of the Engineer and also obtain any instructions regarding cost modifications to the Preambles caused thereby. Any additional cost that may be caused by the use of Rapid Hardening cement be at the Contractor’s expense.

Cement may be delivered to the Site either in bags or in bulk.

If delivered in bags each shall be properly sealed and marked with the manufacturer’s name and on the Site is to be stored in a weatherproof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set, shall be completely discarded and not used in the Works. Bags shall not be stored more than 1.500m in height.

If delivered in bulk the cement shall be stored in a weatherproof silo either provided by the cement supplier or by the Contractor but in either case the silo shall be to the approval of the Engineer.

1. AGGREGATES

Aggregates shall conform with the requirements of B.S. 882 and the sources and types of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading. Once approved, shall be adhered to throughout the Works and not varied without the approval of the Engineer. Fine aggregate shall be clean, coarse, siliceous and sand of good, sharp, hard quality and shall be free from lumps of stone earth, loam, dust, salt, organic matter and any other deleterious substances. It shall be graded within the limits of Zone 1 or 2 of Table 2 of B.S. 882.

Coarse aggregate shall be good, hard, clean approved blackstrap or similar stone, free from dust, decomposed stone, clay earthy matter, foreign substances or friable thin elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal size.

If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water at the Contractor’s expense.

Aggregates shall be delivered to the Site in their prescribed sizes or gradings and shall be stock-piled on paved areas or boarded platforms in separate units to avoid intermixing. On no account shall aggregate be stock-piled on the ground.

The Engineer shall be entitled to require a Certificate from an approved testing laboratory in connection with each source of fine and coarse aggregates showing that materials comply with the Specification. All such testing shall be carried out at the Contractor’s expense.

1. SAMPLES

Samples of materials shall be submitted as soon as possible after the contract is let. No deliveries in bulk shall be made until the samples are approved by the Engineer. All condemned material shall be removed from the Site within 24 hours.

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction do not comply with the requirements of this specifications, the Contractor will be responsible for the costs of the tests and replacement of defective materials and/or construction.

1. WATER

The water used for mixing concrete shall be from an approved source, clean, fresh and free from harmful matter and comply with the requirements of B.S. 3148.

1. EXPANSION JOINT FILLER

Expansion joint filler shall be “Flexcell” as manufactured by Expandite Ltd., or “Resilex” as manufactured by Evomastics Ltd. or equivalent and approved filler.

1. JOINT SEALER

Sealers shall be “pli-astik” or “Seelastik” as described, both manufactured by Expandite Ltd. or equivalent, applied in accordance with the manufacturer’s printed instructions and prices shall include for temporary battens or fillets and afterwards withdrawing to form grooves as necessary.

“Seelastik” shall be applied by gun and where more than 12mm deep shall include filling with loose packing yarn to within 2mm from outer face. “”Pli-astik” shall be grade 88 and applied hot. With the Engineer’s prior approval, polemastic fillers of the appropriate grade as manufactured by Evomastics Ltd., may substitute “Seelastik”.

1. CONCRETE WORK
2. CONCRETE STRENGTHS

Class or grade “40” “30” “25” concrete shall have the minimum strengths as given by Works Cube Tests shown on next page.

Grades lower than those given shall be of nominal mixes and may be measured by volume or weight. No cube tests will be required for these grades.

Nominal mix by volume 1:3:6 1:4:8

Cubic metres of fine aggregate

per 50 kg bag of cement 0.12 0.16

Cubic metres of coarse aggregate

per 50 kg bag of cement 0.24 0.32

Max. size of coarse aggregate 40mm 40mm

1. MEASURED PROPORTIONS OF CONCRETE

CEMENT

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

AGGREGATES (i) For Grades “40” “30” “25” and “20”

concrete, aggregates shall be measured by

weight in a weigh batching machine as

described hereafter.

(ii) For lower Grade concrete, aggregates

may be measured by weight or by

volume. Where by volume, approved

gauge boxes of such a size as will give

the correct proportions shall be used.

1. WEIGH BATCHING MACHINE

Weigh batching machines shall be of an approved type and shall be properly maintained and checked for accuracy at regular intervals.

1. CONCRETE MIXES

The weights of fine and coarse aggregate to be used in concrete mixes “40” “30” “25” and “20”, shall be limited in accordance with the table next page. The proportions of fine to coarse aggregate and cement, which the contractor proposes to use for each of the mixes specified shall first be approved by the Engineer. The contractor will then be required to prepare Preliminary Test Cubes and have these cubes tested as described for work Cube Tests.

TABLE OF CONCRETE CLASSES - MIXES AND THEIR MINIMUM CRUSHING STRENGTHS

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class | Nominal Mix | cubic metre per 50 kg of cement | 28 day strength | | | | 7 day strength | | | | |
|  |  |  | preliminary | | works | | preliminary | | | works | |
|  |  | fine course | kg/cm2 | N/mm2 | kg/cm2 | N/mm2 | kg/cm2 | N/mm2 | kg/cm2 | | N/mm2 |
| P | 1:4:8  (40mm) | .16 .32 | - | - | - | - | - | - | - | | - |
| Q | 1:3:6 | .12 .24 | - | - | - | - | - | - | - | | - |
| 20/(40mm) | 1:2:4 | .07 .14 | 285 | 28 | 205 | 20 | 190 | 18.7 | 145 | | 14 |
| 20/(20mm) | 1:2:4 | .07 .14 | 285 | 28 | 205 | 20 | 190 | 18.7 | 145 | | 14 |
| 25/(20mm) | 1:1.5:3 | .05 .10 | 350 | 34 | 260 | 25 | 230 | 22.7 | 175 | | 17 |
| 30 | Design mixes only | | - | - | 310 | 30 | - | - | 205 | | 20 |
| 40 | Design mixes only | | - | - | 410 | 40 | - | - | 286 | | 28 |

**The average strength obtained for cube tests shall be 25% higher than the**

**minimum strength shown above.**

1. CONCRETE MIXES (CONTD.)

The test results should be submitted to the Engineer in sufficient time for further tests to be carried out should they prove unsatisfactory. Cube strengths in the preliminary tests must show crushing strengths at least 25% higher than the strengths specified for work cube tests. If the Contractor is unable to produce specified cube strengths, he will be required at his own cost to increase the cement content of the mix until satisfactory results are produced.

The Engineer may require at any time during the contract the proportions of fine to coarse aggregate to be altered in order to produce a mix of greater strength or improved workability and providing that the total proportions of aggregate to cement remain unchanged, no claim for additional cost will be considered.

Mix Grade 40 Grade 30 Grade 25 Grade 20

Minimum cement

content by weight 1 to 5 1 to 6 1 to 7 1 to 7

to combined total

weight of aggregate

1. WATERPROOF CONCRETE

Where water proof concrete is specified Sealocrete “Sealopruf Intergral Waterproofing Compound” and “Sealoplaz Concrete Plasticiser” are to be added to the mixing water strictly in accordance with the manufacturer’s instructions and at the rate 500cc and 125cc respectively to each 50kg bag of cement to which the aggregates have already been added and mixed. Not more than 22.5 to 24.75 litres of water per 50kg bag of cement are to be used unless otherwise approved by the Engineer.

1. MATERIALS

Waterbar shall be P.V.C. waterbar as manufactured by Expandite Limited, or other approved type and shall be provided in the positions indicated on the Drawings.

Joints shall be heat welded in accordance with the manufacturer’s instructions and where the waterbar is to be fixed vertically, metal clips as manufactured by the supplier of the waterbar or of other approved design shall be provided to suspend the waterbar from the reinforcement.

Where waterproof concrete is used the Contractor shall adhere strictly to the position and type of construction joints as detailed on the drawings. Any deviation from this procedure or the provision of additional of additional construction joints will require the prior approval of the Engineer and any additional waterbar so required will be at the contractor’s expense.

1. MATERIALS (CONTD.)

Formwork shall be designed with sufficient timber forms and blocking pieces to support the waterbar and to ensure that it is not displaced during concreting. In the case of horizontal joints in vertical walling and similar members the formwork shall be so constructed as to permit the starter or upstand of concrete surrounding the lower half of the waterbar to be poured in the same operation as the slab or other concrete from which it springs. Formwork to walls or similar members where waterbar is positioned at the base of the lift shall have sufficient openings not less than 300 mm square at approximately 150mm to 300mm above the level of the waterbar to permit checking that the waterbar is correctly positioned and not displaced during concreting.

No concreting will be permitted to portions where upstand starters form an integral part until the formwork to the starter has been fixed and approved.

1. SEALOCRETE SUPERCOAT WATERPROOFER

Where specified “Sealocrete Supercoat Waterproofer” shall be applied to concrete or blockwork surfaces strictly in accordance with the manufacturer’s instructions. The surfaces must be well wire-brushed to remove dirt, efflorescence, adhering mortar and all foreign matter. It shall then be cleaned with fresh water. When absolutely dry a generous coat of Sealocrete Supercoat shall be applied by brush or spray gun. Surfaces so treated shall be protected from damage or staining as described elsewhere.

1. WORK CUBE TESTS

Work cubes are to be made at intervals as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150mm moulds in strict accordance with the Code of Practice.

Four cubes shall be made on each occasion, from different batches, the concrete being taken from the point of deposit.

1. WORK CUBE TESTS

Each cube shall be marked with a distinguishing number (number to run consecutively) and the date, and a record shall be kept on Site giving the following particulars:-

Cube No.

Date made.

Location in work.

7-day Test

Date ..........................

Strength .....................

28-day Test

Date ..........................

Strength .....................

1. WORK TUBE TESTS (CONTD.)

Cubes shall be forwarded, carriage paid, to an approved Testing Authority, in time to be tested two at 7 days and one at 28 days and the remaining one at the discretion of the Engineer. No cube shall be despatched within 3 days of casting.

Copies of all Work Cube Test results shall be forward to the Engineer and one shall be retained on the Site.

If the strengths required above are not attained, and maintained throughout the carrying out of the Contract, the Contractor will be required to increase the proportion of cement and or substitute better aggregates so as to give concrete which does comply with the requirements of the Contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by Work Cube Tests.

The Contractor must allow in his rates for concrete test Cubes for all expenses in connection with the preparation and conveyance to the Testing Laboratory and testing of test cubes and no claim in respect of his failure to do so will be entertained.

1. MIXING AND PLACING OF CONCRETE

The concrete shall be mixed only in approval power driven mixers of a type and capacity suitable for the work, and in any event not smaller than 0.5/0.33 cu.m. capacity.

The mixer shall be equipped with an accurate water measuring device. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Wherever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S. 1881. The Contractor shall provide the necessary apparatus and allow for the costs of such tests. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

The concrete shall be mixed as near to the place where it is required as is practicable, and only as much as is required for a specified section of work shall be mixed at one time, such section being commenced and finished in one operation without delay.

All concrete must be efficiently handled and used in the Works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approval means which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes for placing concrete is subject to the prior approval of the Engineer.

1. MIXING AND PLACING OF CONCRETE

Concrete shall be placed from a height not exceeding 1.500m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams and similar members, and shall be placed in horizontal layers not exceeding 1,500mm deep in walls and similar member.

Concrete in columns may be placed to a height of 4.000m with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4.000m suitable openings must be left in the shutters so that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part a construction joint of the form and in the position hereinafter specified shall be made. If stopping of concreting be unavoidable elsewhere, a construction joint shall be made where the work is stopped. A record of all such joints must be made by the Contractor and a copy supplied to the Engineer.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed.

The Contractor shall provide runways for concreting to the satisfaction of the Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement.

Care shall be taken that the concrete is not disturbed or subjected to vibrations and shocks during the setting period.

Mixing machines, platforms and barrows shall be clean before commencing mixing and be cleaned on every cessation of work.

Where concrete is laid on hardcore or other absorbent materials, the base shall be suitable and sufficiently wetted before the concrete is deposited.

1. COMPACTION

At all times during which concrete is being placed, the Contractor shall provide adequate, trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer.

Concrete shall not be placed at a rate greater than will permit satisfactory compaction nor to a depth greater than 450 mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing and vibration. Vibration is required for concrete of grades 40, 30, 25 and 20.

Care shall be taken to fill every part of the forms to work the concrete under and around the concrete without displacing it and to avoid disturbing recently placed concrete, which has begun to set.

1. COMPACTION (CONTD.)

Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water is removed.

Internal vibrators shall be a frequency of not less than 7,000 cycles per minute and shall have a rotating eccentric weight of at least 0.75kg. Such vibrators shall visibly affect the concrete within a radius of 350 mm from the vibrator.

Internal vibrators shall not be inserted between layers of reinforcement less than one and one half times the diameter of the vibrators apart. Contact between vibrators and reinforcement and vibrators and formwork shall be avoided.

Internal vibrators shall be inserted vertically into the concrete wherever possible at not more than 500 mm centres and shall constantly be moved from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete.

In consolidating each layer of concrete the vibrating head shall be allowed to penetrate and re-vibrate the concrete in the upper portion of the underlying layer. In the area where newly placed concrete in each layer joins previously placed concrete more than usual vibration shall be performed, the vibrator penetrating deeply at close intervals along these contacts. Layers of concrete shall not be placed until layers previously placed have been vibrated thoroughly as specified.

Vibrators shall not be used to move concrete from place to place in the formwork.

At least one internal vibrator shall be operated for every two cubic metres of concrete placed per hour and at least one spare vibrator shall be maintained on Site in case of break-down during concreting operations.

External formwork vibrators shall be of the high frequency low amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly to the forms at not more than 1.20m centres.

In addition to internal and external vibration the upper surface of suspended floor slabs shall be levelled with a tamping or vibrating screed prior to finishing. Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3,000 r.p.m.

1. CURING AND PROTECTION

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of hessian sacking, polythene sheeting, or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete coverage of all fresh concrete for a period of 7 days. Hessian or polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hessian or other material in small pieces.

Concrete in foundations and other underground work shall be protected from admixture with falling earth during and after placing.

A. CURING AND PROTECTION (CONTD)

Traffic or loading must not be allowed on the concrete until the concrete is sufficiently matured, and in no case shall traffic or loading be of such magnitude as to cause deflection or other movement in the formwork or damage to the concrete members. Where directed by the Engineer props may be required to be left in position under slabs and other members for greater periods that those specified hereafter.

1. FAULTY CONCRETE

Any concrete which fails to comply with these Preambles, or which shows signs of setting before it is placed shall be taken out and removed from the Site. Where concrete is found to be defective after it has set, the concrete shall be cut out and replaced in accordance with the Engineer’s instructions. On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or patched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost, whatsoever, which may be occasioned by the need to remove faulty concrete shall be borne by Contractor.

1. ROD REINFORCEMENT

The steel reinforcement shall comply with the latest requirements of the following British Standards: -

Hot rolled M.S. for the reinforcement

of concrete B.S. 4449

Hot rolled H.Y. steel for the

reinforcement of concrete B.S. 4449

Cold worked H.Y. steel for

the reinforcement of concrete B.S. 4461

Hard drawn steel wire B.S. 4482

The Contractor shall submit a test certificate of the rollings. Reinforcement shall be stored on racks above ground level. All reinforcement shall be free from loose mill scale or rust, grease, paint or other substances likely to reduce the bond between the steel and concrete.

1. CONSTRUCTION JOINTS

Construction joints shall be permitted only at the positions predetermined on the drawings or as instructed on the Site by the Engineer. In general they shall be perpendicular to the lines of principal stresses and shall be located at points of minimum shear, viz. vertically at, or near, mid-spans of slabs, ribs and beams.

Suspended concrete slabs are generally to be cast using alternate bay construction in bays not exceeding 15,000 m in length. No two adjacent bays are to be cast within a minimum period of 48 hours of each other. The joints between adjacent bays are to be in positions agreed with the Engineer.

Under no circumstances shall concrete be allowed to tail-off, but it shall be deposited against stopping-off boards.

Before placing new concrete against concrete already hardened, the face of the old concrete shall be thoroughly hacked, roughened and cleaned, and laitance and loose material removed therefrom, and immediately before placing the new concrete the surface shall be saturated with water and covered with a coat of mortar at least 25mm in thickness composed of cement and fine aggregate in the proportions used in the concrete.

1. FABRIC REINFORCEMENT

Fabric reinforcement shall be electrically cross-welded steel wire mesh reinforcement to B.S. 4483, and of the size and weight specified.

1. FIXING ROD REINFORCEMENT

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and Schedules and in accordance with B.S. 4466. Reinforcement must be cut and bent cold and no welded joints will be permitted unless so detailed.

Reinforcement shall be accurately placed in position as shown on the drawings, and before and during concreting, shall be secured against displacement by using no. 18 S.W.G. annealed binding wire or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers to ensure the correct position and cover.

No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained. The Contractor shall give two clear days’ notice of his intention to concrete to the Engineer.

The Contractor is responsible for maintaining the reinforcement in its correct position, according to the drawings, before and during concreting. During concreting a competent steel fixer must be in attendance on the concretors to adjust and correct the positions of any reinforcement, which may be displaced. The vibrators are not to come into contact with the reinforcement.

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the Contractor’s sole responsibility to ensure that the reinforcement complies with the details on the drawings or bending schedules and is fixed exactly in the positions shown therein and in the positions to give the prescribed cover.

1. FIXING ROD REINFORCEMENT (CONTD.)

The Contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, third party claims, etc., where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed drawings or bending schedules.

Spacing blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.G wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained. The Contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement where such supplier has been nominated. Where composite blocks or other forms of rib construction are used, spacer blocks are to be provided as shown on the drawings. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3mm tolerance and with single or double grooves (depending on the number of reinforcement bars used per rib) in the top surface with wire ties at each groove.

Unless otherwise directed the concrete cover to rod reinforcement over main bars in any face shall be: -

Foundations against earth face 75 mm

Foundations against blinding 50 mm

Columns 40 mm

Beams 25 mm

Slabs 15 mm

Walls 25 mm

B. FIXTURES AND INDENTATIONS IN CONCRETE

No openings, chases, holes or other voids shall be formed in the concrete without the prior approval of the Engineer. Details of any fixtures to be permanently built into the concrete including the positions of all conduits 25 mm and over in diameter shall be submitted to the Engineer for his approval before being placed.

# CHASES, HOLES, ETC. IN CONCRETE

The Contractor shall be responsible for the co-ordination with the Electrical and other Sub-Contractors for incorporating electrical conduit, pipes, fixing blocks chases, holes and the like in concrete members as required and must ensure that adequate notice is given to such Sub-Contractors informing them when concrete members incorporating the above are to be poured. The Contractor shall submit full details of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc., to be left in the concrete shall be accurately set out and cast with the concrete.

A. CHASES, HOLES, ETC. IN CONCRETE (CONTD)

Unless otherwise instructed by the Engineer all electrical conduit to be positioned within the reinforced concrete shall be fixed inside the steel cages of beams and columns and between the top and bottom steel layers in slabs and similar members.

The proposed position of all conduits 25 mm and over in diameter which are to be enclosed in the concrete shall be shown accurately on a plan to be submitted to the Engineer, whose approval shall be obtained before any such conduit is placed.

1. FORMWORK

The method and system of formwork which the Contractor proposes to use shall be approved by the Engineer before construction commences. Formwork shall be substantially and rigidly constructed of timber or steel or precast concrete or other approved material.

All timber for formwork shall be good sound clean sawn well-seasoned timber, free from warps and loose knots and of scantlings sufficiently strong for their purpose.

1. FIXING FABRIC REINFORCEMENT

The fabric shall be free from scale, rust, grease or other substance likely to reduce the bond between the steel and the concrete and shall be laid with minimum 300 mm laps and bound with No. 18 S.W.G. annealed iron wire.

Where reinforcement projects from a concreted section of the structure and this reinforcement is expected to remain exposed for some time, it is to be coated with cement grout to prevent rust staining on the finished concrete. This grout is to be brushed off the reinforcement prior to the continuation of concreting.

1. CONSTRUCTION OF FORMWORK

All formwork shall be of sufficient thickness and with joints close enough to prevent undue leakage of liquid from the concrete and fixed to proper alignment, level and plumb and supported on sufficiently strong bearers, shores, braces, plates, etc., properly held together by bolts or other fastenings to prevent displacement, vibration or movement by the weight of materials, men and plant on same and must be so wedged and clamped as to permit easy removal of the formwork without jarring the concrete. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame to permit the load to be temporarily carried during construction.

Soffits shall be erected with an upward camber of 10mm for each 4.000M of horizontal span or as directed by the Engineer.

Great care shall be taken to make and maintain all joints in the formwork as tight as possible, to prevent the leakage of grout during vibration. All faulty joints shall be caulked to the Engineer’s approval before concreting.

The formwork shall be sufficiently rigid to ensure that no distortion or bulging occurs under the effects of vibration. If at any time the formwork is insufficiently rigid or in any way defective the Contractor shall strengthen or improve such formwork as the Engineer may direct.

A. CONSTRUCTION OF FORMWORK (CONT’D)

The Contractor’s attention is drawn to the various surface textures and applied finishes required and the faces of formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

All surfaces which will be in contact with concrete shall be oiled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin before the reinforcement is placed. Surplus moisture shall be removed form the forms prior to placing of concrete.

Temporary openings shall be provided at the base of columns, wall and beam forms and at any other points where necessary to facilitate cleaning and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued-up and any water accumulated therein shall be removed. All sawdust, chips nails and other debris shall be washed out or otherwise removed from within the formwork. The reinforcement shall then be inspected for accuracy of fixing. Immediately before placing the concrete the formwork shall be well wetted and inspected openings shall be closed. The erection, easing, striking and removing of all formwork must be done under the personal supervision of a competent foreman, and any damage occurring through faulty formwork or its incorrect removal shall be made good by the Contractor at his own expense.

After removal of formwork, all projects, fins, etc., on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any voids or honey-combing shall be treated as described under “Faulty Concrete”.

1. STRIPPING FORMWORK

All formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum period that shall elapse between the placing of the concrete and the striking of the formwork will be as follows: -

Beam sides walls and columns (unloaded) 2 days

Slab soffits (props left under) 3 days

Beam soffits (props left under) 7 days

Removal of props: - subject to 7 days concrete cube

strength being satisfactory.

Slabs 10 days

Beams 14 days

If the Contractor wishes to take advantage of the shorter stripping times permitted for beam and slab soffits when props are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original position without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

A. STRIPPING FORMWORK (CONTD.)

The above times may be reduced in certain circumstances, at the discretion of the Engineer provided an approved method is adopted at the Contractor’s expense to ensure that the required concrete strength is attained before the forms are stripped.

Solid strips in composite slab shall be considered as beams. The tops of retaining walls shall be adequately supported with stout raking props at intervals required by the Engineer. These props are not to be removed until after 7 days casting of the floor slab.

1. SURFACE FINISHES
2. FAIR FACE FINISH

Where fair face finish is specified the concrete shall be brought to a perfectly true smooth and even surface by rubbing with carborundum stone dipped in cement grout. Such work must be commenced within one hour of removing the formwork and actively and rapidly pursued until completed, the object being to complete the finish as soon as possible after the removal of the shuttering. On no account may such work be postponed to a later stage in the Contract. Fair face surfaces shall be clean, smooth, even true to form and free from all board marks, joint marks, honeycombing, pitting, etc. The Contractor is permitted at his own expense to provide smooth lining to the forms which will achieve the required finish without rubbing down. All rubbed down work must be lightly washed with plain cold water at the completion of the Contract and not before the cement grout used in the finish is at least four weeks old after initial mixing.

1. WROUGHT LINED FORMWORK

The shuttering shall be constructed of wrought tongued and grooved boarding, plywood or blockboard lined with approved laminated plastic sheeting to produce a concrete surface with truly flat surface completely free from all air bubbles, joint marks, honeycomb and other pittances and blemishes to the approval of the Engineer.

Should the Contractor desire to use alternative materials he should submit his proposals to the Engineer for approval.

Should the Contractor fail to obtain approval and the Architect subsequently rejects the work, the Contractor will at his own expense carry out all work necessary to attain the approval of the same.

1. TAMPED FINISH

Areas so specified shall be finished at the time of casting with a tamped finish to the Engineer’s approval produced by an edge board. Board marks are to be made to a true pattern and will generally be at right angles to the traffic flow. Haphazard or diagonal tamping will not be accepted.

A. BOARD MARKED FINISH

Where so direct or measured the finish shall be that of a board marked pattern in panels, the boards shall be arranged vertically or horizontally and of widths and sizes all as detailed on the drawings. All exposed concrete will be left unpainted and therefore every care and attention shall be paid to obtain a satisfactory visual appearance and the maintenance of the same throughout the building operation. The finished surfaces shall be free from blowholes, hungry patches and other blemishes, and sample panel is to be provided and approved by the Engineer before work commences.

Unless otherwise specified, the formwork shall be rip sawn softwood to the Engineer’s approval and shall have a sufficiently strong grain to impart a corresponding pattern to the concrete surface. Unless otherwise approved it shall have four uses only and shall be carefully cleaned from adhering grout after each use. It shall be lightly oiled with an approved non-staining.

1. CHISEL DRESSED FINISH

Where specified a chisel dressed finish is to be carried out on any grade of concrete but not until it is at least 30 days old. The surfaces are to be fully chisel dressed to remove a maximum of 12 mm (average 9 mm) of the surface to expose the aggregate without excessive cracking or braking thereon.

Where the drawings show details of arises of columns, beams, etc. These are to be pre-formed with timber fillets set in the formwork, and care must be taken in working up to those to preserve a clean line. For vertical surfaces of walls and columns, particular care must be taken to remove all sharp projections. For beam soffits this requirement is not necessary.

All chisel dressed surfaces are to have the margins chisel dressed by hand for a minimum width of 75 mm commencing from the fillet edge. Thereafter mechanical chisel dressing may be used but the Contractor must ensure that a uniform texture and even plane surface is achieved. The use of pointed steel tools for both hand and mechanical chisel dressing is essential. Upon completion the surfaces are to be thoroughly wire brushed and washed down and protected during the course of construction from damage, dirt, cement grout, etc.

1. PRECAST CONCRETE

Unless otherwise approved by the Engineer, all precast concrete construction shall be carried out on the Site and shall conform to requirements given elsewhere in these preambles.

The Maximum size of coarse aggregate in precast concrete shall not exceed 20 mm except for thicknesses less than 75 mm where it shall not exceed 15 mm.

The compacting of precast concrete shall conform with requirements given elsewhere in these preambles except for thin slabs where use of immersion type vibrators is not practicable. The concrete is these slabs may be consolidated on a vibrating table or by any other methods approved by the Engineer.

Steam curing or precast concrete will be permitted. The procedure for steam curing shall be subject to the approval of the Engineer.

A. PRECAST CONCRETE (CONTD)

The precast work shall be made under cover and shall remain under the same for seven days. During this period and for a further seven days the concrete shall be shielded by sacking or other approved material kept constantly wet. It shall then be stacked in the open for at least a further seven days to season before being set in position. Where steam curing is used these times may be reduced subject to the approval of the Engineer.

Precast concrete units shall be constructed in individual forms. The method of handling the precast concrete units after casting during and during transport and erection shall be subject to the approval of the Engineer, providing that such approval shall not relieve the Contractor of responsibility for damage to precast concrete units resulting from careless handling.

Repair of damage to the precast concrete units, except for minor abrasions of the edges which will not impair the installation and/or appearance of the units will not be permitted and the damaged units shall be replaced by the Contractor at his own expense.

Except where precast work is described as “fair face” or as having an “exposed aggregate” or terrazzo finish the moulds shall be made of suitable strong sawn timber true in form to the shapes required. Unless otherwise described faces are to be left rough from the sawn moulds.

Where precast work is described as “fair face” the moulds are to be made of metal or are to have metal or plywood linings or are to be other approved moulds which will produce a smooth dense fair face to the finished concrete suitable to receive a painted finish direct and free from all shutter marks, holes, pittances, etc. In his prices for such precast work the Contractor shall include for all rubbing down to produce the finish required, to the satisfaction and approval of the Engineer. Where precast work is to have an “exposed aggregate” or terrazzo finish the moulds shall be constructed to the requirements given for moulds for “finished fair” work. The method of achieving the exposed aggregate finish shall be the “aggregate transfer” or other approved methods.

The precast units shall be installed to the lines, grades and dimensions shown on the Drawings or as directed by the Engineer.

1. COMPOSITE FLOOR SLABS

Concrete hollow blocks for use in the composite floor slabs are to be of the sizes required as shown on the drawings and with 25 mm wall thickness and are to be of adequate strength to support the concrete during placing and consolidation by vibration. Blocks are to be manufactured in accordance with the procedure specified in B.S. 2028 and to be of a mix not weaker than 1:4:8 cement: sand: stone using maximum 10 mm size aggregate.

Concrete blocks are to be cured for at least 28 days before use on the Site. During the first seven days of curing, blocks are to be kept permanently damp and protected from exposure to sun and wind.

Concrete blocks are to be well wetted before the pouring of concrete.

A. COMPOSITE FLOOR SLABS (CONTD)

Hollow clay filler blocks for use in the composite floor slabs are to be of the sizes shown on the drawings and to be of adequate strength to support the concrete during placing and consolidation by vibration. They shall be obtained from an approved manufacturer. Before any orders are placed, at least 6 samples clay blocks shall be provided for the approval of the Engineer. Any clay blocks subsequently delivered to Site, which in the opinion of the Engineer are not of equal standard to the approved samples shall be rejected.

Rejected blocks shall immediately be removed from the Site and shall not be used in the works. Clay blocks are to be fully cured before delivery or use on Site.

Clay blocks are to be well wetted before the pouring of concrete.

1. COMPOSITE FLOOR CONSTRUCTION

The hollow block floor construction is generally to be as shown on the Engineer’s Drawings.

Care shall be taken in placing blocks to ensure that they are set out in accordance with the details shown on the Drawings and that they run truly in line without encroaching on the width of the insitu ribs.

The open ends of hollow blocks, if adjacent to concrete to be placed insitu, are to be plugged or stopped to prevent the concrete from flowing into the void and the Contractor is to include for this in his prices.

The Contractor should note that slip tiles are not to be used to the soffits of ribs and he is to take this into consideration in pricing the items of formwork to the soffit of hollow block floor construction.

Before concreting is carried out the blocks are to thoroughly wetted.

Care should be taken during concreting that the width of ribs between the rows of blocks and the solid insitu concrete shown on the Drawings adjacent to supporting beams is not encroached upon by the blocks.

It is essential that the concrete topping be poured at the same as the ribs between hollow blocks.

Reinforcement shall be positioned accurately with required cover in accordance with the Drawings and using the particular spacing blocks with wire ties as previously described. Spacer blocks shall be provided in ribs at not more than 1.200 M centres. Care must be taken during concreting that the reinforcement is not displaced.

Where holes for services, occur, the necessary holes or pockets shall be accommodated by the replacing of a hollow block by insitu concrete or the widening of a rib all in accordance with the Engineer’s instructions.

Prices for such holes, through hollow block construction are to include the re-arrangement or substitution of the hollow block with solid concrete in addition to the actual formation of the hole.

A. CONCRETE SURFACE BEDS

Concrete for surface beds shall be Grade 20.

Before placing concrete and where specified or shown on the Drawings a layer of 500 gauge polythene or diothene sheeting shall be laid on the base course. Minimum 300 mm laps shall be provided at all joints.

The concrete shall be placed as soon as possible after being mixed. In transporting the concrete, adequate precautions shall be taken to avoid damage to the prepared base. The concrete shall be spread to such a thickness as specified or shown on the Drawings. A layer of concrete 50 mm less than the finished thickness shall first be spread and struck off at the correct level to receive the top fabric reinforcement. The top layer shall then be added. Not more than 30 minutes shall elapse between spreading the bottom layer. The Contractor shall be responsible for maintaining the reinforcement in its correct position during the placing and compaction of the concrete.

The compaction and finishing of the concrete shall be effected by immersion vibrators and a hand or mechanical tamper weighing not less than 10 kg per meter run and having a tamping edge shod with a steel strip 75 mm wide fixed to the tamping by countersunk screws. Immersion vibrator with “spade” attachments will be permitted. Compaction shall be continued until a dense, scaled surface finish is achieved. Over-compaction causing an excessive amount of fines to be brought to the surface shall be avoided.

The surface of the concrete shall be finished to the surface texture specified to the levels, falls and crossfalls, as directed or shown on the Drawings and shall be subject to the following tolerance:-

The level shall be within or - 6 mm of the levels specified.

The falls shall be within 10% of the falls specified.

The smoothness shall be such that departures from a 3.00 m straight edge laid in any direction shall not exceed 3 mm.

Mirror irregularities shall be made good by the use of a steel float but in no circumstances shall mortar be used to make good the surface.

As soon as the surface has been finished, it shall be protected against too-rapid drying by means of damp hessian, polythene sheeting or other approved means placed carefully on the surface and kept damp and in position for 7 days and the concrete shall be kept wet for further 21 days. The most critical period is the first 24 hours after placing and curing during that time shall be very thorough. The Contractor is to obtain the Engineer’s approval to the material and method he proposes to use for curing and no concreting will be permitted until sufficient such material is on Site.

Formwork shall not be removed from freshly placed concrete until it is at least 24 hours old. Care shall be taken that in their removal no damage is done to the concrete, but should any damage occur the Contractor shall be responsible for making it good.

A. COMPOSITE SLABS

Prices for suspended hollow tile composite floor and roof slabs must be “all inclusive” to include for concrete hollow tiles, insitu concrete ribs, concrete topping, concrete filling to open ends of hollow concrete tiles.

Concrete in main beams shall be separately measured to the full width thereof and for full depth to top of slab level and composite slabs are measured the nett area between same. No adjustment will be made in these measurements for any projection of ribs, Reinforcement, etc., into main beams or flanges etc, to obtain bearings, which are deemed to be covered in the Contractor’s rates.

1. EXPANSION JOINTS IN CONCRETE SURFACE BEDS

Expansion joints shall be positioned and constructed as shown on the drawings. The joints in the surface beds shall be absolutely square and true to line and position.

All joints in surface beds shall be formed to the patterns and shapes to coincide exactly with the joints in the surface finish or as otherwise indicated on the Drawings. Formwork shall be manufactured from steel or heavy angle section and be to the Engineer’s approval. The Contractor shall submit drawings of the forms he intends to use and obtain the Engineer’s approval before fabrication. Panels shall be poured in alternate bays as agreed with the Engineer. No construction joints other than those indicated on the Drawings shall be submitted.

1. NOTES CONCERNING MEASUREMENT AND PRICING

The Contractor must allow for all costs incurred during the progress of the Contract for complying with the provisions concerning the preparation and use of the specified grade mixes.

Prices for concrete shall include for mixing and depositing as described or indicated and for hoisting and depositing at the various levels required throughout the building, and shall also include for forming or hacking a satisfactory key for all faces receiving asphalt and plaster work. Prices for slabs shall also include for levelling off the surface as described under “Compaction”, and all temporary formwork to form construction joints at bay edges.

Prices for reinforced concrete shall, in addition, include for filling into, between or on formwork, and thoroughly compacting between and around rods or fabric reinforcement and for forming all additional construction joints between varying mixes. Where described as vibrated, prices must include for fully vibrating as described.

Prices for formwork shall include for extra material at joints, extra labour and waste for narrow widths, small quantities, overlaps, passing at angles, straight cutting and waste, splayed edges, notchings, etc., and for fixing at the various levels including battens, struts, and supports and for bolting, wedging, easing, striking and removal. Prices for linear items such as boxings shall include for angles and ends.

1. NOTES CONCERNING MEASUREMENT AND PRICING (CONTD.)

Prices for steel rod reinforcement shall include for cutting to lengths and all labour in bending and cranking, forming hooked ends handling, hoisting and fixing in position and for providing all necessary tying wire and supports. Prices for fabric reinforcement shall include for all straight cutting and waste, handling, hoisting and fixing in position, providing all necessary tying wire and supports and all extra material in laps.

Prices of all precast concrete shall include for all moulds, finishing as described, handling reinforcement, hoisting and fixing at the required levels, bedding, joints and pointing in cement and sand (1:5 mortar) also for casting or cutting to the exact lengths required and any waste resulting from such cutting.

Prices for expansion joints shall include for cutting to size and all temporary supports, and prices for expansion joints sealers shall include all temporary battens or fillets required to form the necessary grooves.

SPECIFICATION FOR ELECTRICAL WORK

**INDEX**

1. **Electrical Works**
2. **General Provisions for Electrical Work**
3. **Conduits**
4. **Cables and Wires**
5. **Lighting**
6. **Earthing**

**A. ELECTRICAL WORKS - PART 1 - GENERAL**

1. The electrical work shall be carried out by an electrical sub-contractor who is on the approved list of electrical contractor's
2. The electrical sub-contractor must have, during the entire duration of the Contract, qualified of work. The electrical engineer should be registered with the Local Engineer’s Association and his name, qualifications and experience should be submitted for approval. The electrical engineer and supervisor should be available at site during all working hours.
3. The name of the electrical sub-contractor, details of his experience and his staff qualifications and experience shall be submitted by the tenderer with his tender in accordance with form shown hereinafter which shall be filled by the tenderer and his proposed sub-contractor.

**1.01 SCOPE OF WORK**

1. The Work included in these Specifications is for the complete Electrical Services for the Project. The Work described and included in this Specification is for the manufacture works, testing, supply, delivery to site, erection, connection, site testing, demonstrating, commissioning and maintaining for required duration, all equipment and installation as described in this Specifications and shown on Contract Drawings. Additionally all equipment and installation shall conform to local authorities Specifications.  Any Works whether or not shown on the Drawings and/or described in the Specifications but which can reasonably be inferred as necessary for the completion and proper operation of the works will also form part of the extent of the Contract
2. All Electrical Works complete in all respects shall be provided in accordance with the requirements of the Contract Documents. The scope of works shall include, but not be limited to the following:

**1.02 A. RELATED SECTIONS**

**SECTION TITLE**

14200 Conveiance System

16000 Electrical Works

16010 General Provisions for Electrical Work

16110 Raceways

16120 Conduits

16200 Cables and Wires

16300 Supporting Devices

16400 Main Distribution Equipment

16500 Lighting

16640 Earthing

16670 Lightning Protection system

16720 Fire Detection and Alarm System

16760 Data System

16771   Public Address /Evacuation System

16772Audio Visual, Conference, Interpretation System

16960 Building Surveillance System (CCTV)

**B. RELATED WORKS SPECIFIED ELSEWHERE**

The following related service installations are specified in other divisions of the Specifications. The Contractor shall co-ordinate all his installation with the related works such as:

1. -  Plumbing
2. -  HVAC
3. -  Fire Fighting
4. -  Interior Finishes & Architectural Works
5. -  Any other sub-contractor engaged for the project.

**1.03 REGULATIONS**

**A. Authorities and Regulations**

The Contractor shall comply with all statutory requirements and regulations issued by the local authorities within whose area of jurisdiction the site is contained.

The Contractor shall also comply with the relevant "Codes of Practice" issued by the British Standards Institution and the latest edition of the "Regulations for the Electrical Equipment of Buildings" issued by the Institution of Electrical Engineers, and any supplements thereto.

**1.04 CLIMATIC CONDITIONS**

1. Extremes of temperature and humidity are experienced. Periods of high  humidity has been recorded.  Sand and dust storms occur and even on comparatively still days, fine dust is carried in the atmosphere.
2. All equipment and materials forming the electrical installation work shall be designed and constructed to provide satisfactory service without any harmful effects for prolonged and continuous use in the climate of the project Generally, the following temperatures shall be made as design criteria:
   1. 35 Deg. C if installed within buildings having good heat insulating properties and adequate ventilation.
   2. 40 Deg.C if installed in well ventilated positions and shaded from direct sunlight throughout the day.
   3. 45 Deg.C if exposed to direct sunlight.

*Minimum Temperatures Likely to Occur are:*

* 1. -5 Deg.C outdoors.
  2. 10 Deg.C indoor.

The above temperatures do not take into consideration heat generated from the equipment itself or from any other equipment installed in the vicinity.

1. The capacity and rating of all electrical equipment and materials given are Local rating, i.e. rating when equipment are operating under Local Climatic Conditions. Any derating factors applied should be clearly indicated.
2. Where specific sizes are indicated e.g. cable sizes, due allowances have been made in the design for the climatic conditions of project and de-rating has been applied.

**1.05 ELECTRICITY SUPPLY**

**A.** All electrical equipment accessories and fittings shall be designed and manufactured to operate continuously in the electricity supply system having the following characteristics: -

Voltage

415 Volts ± 6% 3Phase 4-Wire 50 Hz ± 4%

Solidly Earthed 31 MVA at 415 volts

0.5 Seconds

Frequency Neutral Fault Level Fault Duration

**1.06 STANDARDS**

All works contained herein shall be subject in every respect to the approval of the Engineer.

The design manufacture installation and testing of all materials and equipment shall comply with the latest Local Authorities Specifications. Where no particular item is not specified by Local Authorities Specifications, relevant recommendation of the International Electrotechnical Commission (I.E.C.) and if this is not available then with the latest relevant British Standard Specification (B.S.S.) or other approved National Standards. Specifically the following standards/regulations/codes shall be acceptable:

1. -  IES/CIBSE Illumination codes
2. -  CIE International Commission on Illumination
3. -  Relevant British Standard Codes for Practice (BSCP)
4. -  International Commission for Conformity Certification of Electrical Equipment (CEE)
5. -  Specifications for Installation of Telephones, issued by the Ministry Of Teleommunication.
6. -  The latest relevant recommendations of the committee ‘Consultant International Telephone and Telegraph (CCITT)
7. -  Civil Defense Fire Department
8. -  British Fire Officer’s Committee (FOC) Rules (Latest Edition)
9. - National Fire Protection Association (NFPA)
10. Standards for materials and the design of equipment are quoted throughout this specification and the Contractor shall produce copies of these Standards as required and instructed by the Engineer. If the Contractor offers equipment, which is not manufactured, in compliance with these Standards the equipment offered should be at least equal in performance and quality to that required by the relevant Standard.
11. In the event of the Contractor offering materials or equipment which differs from that described in this Specification, the Contractor shall include for all the costs involved in checking the design, any necessary redesign, drawings and the modifications to other equipment of the affected system.
12. While making an offer, the Tenderer should specify the name of the Manufacturer he intends to use for the supply of each equipment material/light fitting etc. In offering such material or equipment or light fitting he shall include with his tender the detailed information necessary to demonstrate quality. The presentation of such data shall take the form of a comparison sheet giving on one column the critical parameters required by the relevant Standard and/or equipment specified and an adjacent column giving the standards of the equipment offered in the Tender. Where manufacturers names are particularly specified for any item, the contractor must choose from the specified manufacturer(s).
13. The term "materials" as used in this Specification refers to any basic engineering equipment which forms part of the installation but which in itself does not form a unit which can be specified with an output performance.
14. Materials are related to a Standard whenever applicable and it is deemed that such reference, without further amplification, includes the whole of the current Standard. With the approval of the Engineer, alternative and equivalent National or International Standards may be used, but these must be declared and agreed at the time of Tendering.
15. All materials/equipments/light fittings manufacturers selected by the contractor shall have established local agents.

**1.07 CAPACITIES AND DERATING FACTORS**

The capacities and ratings of the equipment, electrical components and accessories shall be sufficient to give satisfactory service in the environments conditions stated herein before.

Sizes of electrical cables and wires shall be determined by suitably derating the current ratings of such cables and wires in accordance with the rating factors indicated in the I.E.E. Regulations. The attention of the Contractor is drawn to the fact that the application of derating factors for the higher ambient temperatures will not by itself render the equipment suitable for the climatic conditions of the site. Full considerations shall be given to the severe climatic conditions.

**1.08 FUSING AND PROTECTION**

The rating (in amperes) of circuit breakers, switch fuses and circuit ways of distribution boards given on diagrams or drawings are the maximum normal (operating) rating permissible for such circuit.

On completion of the installation it shall be the responsibility of the Contractor to set the overload protection appropriate to the actual loading on each circuit.

The Contractor shall be held liable to make good any damage resulting from overloading should it be discovered that overloads where improperly set or fused incorrectly rated.

Under no circumstances shall cartridge fuse carriers be bridged with loose fuse wire. In the event of such malpractice being discovered, the Contractor will be required to replace the whole assembly if such a fuse is blown.

**1.11 DRAWINGS**

1. Before signing the contract, the Contractor should obtain a set of the approved drawings by the local authorities. It shall deemed to be understood that Contractor has taken into account the difference between Tender Document/Drawings and the approved drawings and that he shall not be eligible for any additional payments/variations etc.
2. Refer to all other Architectural, Structural and Mechanical Drawings to verify all spaces and conditions affecting the electrical work and to ascertain the location and routes of all gas and water services, AC ducts, piping ...etc. so as to maintain adequate clearance between electrical and other services. The Drawings shall be available at the contractor's Office. In case of discrepancy the decision of the engineer shall be final.

**1.12 DISCREPANCIES**

Before signing the contract, the Contractor should verify for himself any discrepancies between B.O.Q and the drawings. He may add in his offer any additional amounts that are required to meet the discrepancies. Under No circumstances he will be eligible for additional claims on account of such discrepancies.

**2.01 MATERIALS**

1. All equipment and materials used in the electrical installation work shall be new and of the highest quality. They shall be suitable for operation the standard voltage and frequency in the area of the project.
2. Unless otherwise specified, all equipment and materials shall comply as a minimum with the latest relevant recommendations of the International Electrotechnical Commission (IEC). If these are not available for any equipment or material then the latest relevant British Standard shall be followed.
3. If standards mentioned above contradict with this Specification, then the requirements of this Specification shall prevail.
4. Electrical equipment and material complying with other national standards may be considered for use in the work provided, the Contractor shall, at the time of submitting his offer, confirm in writing that such standards meet the requirements of IEC/BSS as regards characteristics, requirements and testing procedures as a minimum. The Contractor, if awarded the work on the basis, shall be required to substantiate this by producing all relevant data and test certificates and, if needed, by report from an approved inspecting and testing authority confirming that the results of the tests carried out on these equipment and materials meet the requirements of IEC/BSS as a minimum. Only after the production of such evidence and subsequent approval of the Engineer should the equipment and materials be delivered to site.
5. Submit to the Engineer full details and particulars of all equipment and materials proposed for use and no material shall be ordered, delivered or constructed without a written approval from the Engineer. Any material or equipment, which is not approved but installed, shall be removed and reinstalled with approved one at the Contractor's expense.
6. The details of equipment and materials shall include the following:

1. Full technical specifications of equipment including construction, materials, degree of protection, characteristics, curves, diagrams, ratings, dimensions, fixing details, etc.

2. Relevant sheets of manufacturer's catalogues, specifications, technical data ...etc.

3. Confirmation that equipment and materials offered complies fully with relevant Clauses of the Specification and, in case of deviation from the Specification, a schedule of deviations listing all points not conforming to the Specification.

4. Short circuit study including all components shown on the Schematic Diagrams.

G. Submit, at the request of the Engineer, a sample of any equipment or material for further study before approval.

H. Manufacturers specified by name are not relieved of the responsibility for meeting Specification requirements and submittal for approval.

I. No order shall be placed by the Contractor for major material or equipment unless written approval of the Engineer has been obtained. The Contractor shall report monthly progress of the purchase orders to the Engineer submitting to him a copy of the orders.

**3.01  WORKMANSHIP**

1. The works shall be executed in a neat, substantial and workmanlike manner. All workmanship shall be strictly first class in every respect and shall be performed only by skilled workmen.
2. Whether or not shown on the Drawings, equipment shall be installed in such a manner that equipment, operating and control devices ...etc. are readily accessible for service and adequate access spaces are maintained.
3. Obtain detailed information from the manufacturers of equipment as to proper method of installation and connection of these equipment.
4. Should any portion of the Contract works, which should reasonably and obviously be inferred as necessary for thecomplete, safe and satisfactory operation of the electrical installation as a whole, but not expressly described or specified, provide and execute such works as part of the Contract.

**3.02  CONTRACTOR'S REPRESENTATIVE, STAFF AND WORKMEN**

1. The Contractor shall keep permanently on the site, a competent Senior Electrical Engineer, having an experience of not less than 10 years, as his representative fully experienced and who has executed as Superintendent of electrical installation works of the type and scale similar or larger than this Project.
2. The Contractor shall submit to the Engineer the Schedule of Proposed Contractor's Engineers Senior Draftsmen and Senior Foremen employed for this Project stating the names, nationalities, ages, qualifications and detailed experience before proceeding with the Works. The Contractor shall from time to time supply any further personnel in addition to those proposed and approved as may be necessary to ensure the satisfactory progress of the works.

**3.03  IDENTIFICATION AND LABELLING**

1. The components of all main and sub-main switch boards, all distribution boards, switches, isolators and other items of plant shall be clearly identified by means of labels secured to the external surfaces of the units designating the function of these units.
2. The labels shall be 2mm. "Traffolite" of minimum size 50 x 20mm with 5mm black lettering on white background fixed securely to front plates of distribution boards, switches, circuit breakers, isolators, starters, push buttons, lamps instruments ...etc.
3. In addition to this each distribution board shall also be provided with circuit schedules fixed rigidly inside the door of the board and indicating the number, rating, type of load and location of each circuit in the board.
4. Each end of each cable shall be provided with identification labels lettered with feeder or circuit designation to the Engineer's instructions. The labels shall be permanently fixed in distribution boards, terminal boxes, isolators, ...etc.
5. Manufacturers name plates shall include manufacturer's name, model or type number, serial number and all applicable ratings clearly marked thereon. The name plates shall be placed in a conspicuous location on the equipment.

**3.04  TESTING AND COMMISSIONING**

1. On completion of the entire electrical installation work or any separate or distinct part thereof, notify the Engineer, in writing, that the completed part of the electrical work is ready for inspection. Before doing so, perform initial trial tests. Test, correct, adjust, balance, regulate, ...etc. the section concerned as necessary until required conditions are obtained.
2. The inspection of the Contract work shall be carried out in the presence of the Engineer and in accordance with the requirements of Section 'E' of the IEE 'Regulations for Electrical Equipment of Buildings’ and shall comprise of but not be limited to:

1. Verification of polarity.

2. Effectiveness of earthing.

3. Insulation resistance test.

 4. Test of ring circuit continuity.

5. Phase rotation.

6. Operation tests of relays, interlocks and any other protective and  control device to ensure correct functioning.  The results and readings obtained shall be equal or better than the requirements of the IEE and the local authorities regulations and these shall be recorded on forms similar to the ones described in the IEE regulations.

1. Supply all instruments and tools required for carrying out the tests.
2. In case that the above-mentioned tests are satisfactory and no errors or faults appeared in the installation, submit the necessary test forms duly filled, to the local authorities and to repeat, if necessary, the tests in the presence of the local authorities Inspector.
3. Follow-up and make all necessary arrangements with the local authorities for the purpose of providing permanent electricity supply and telephone service. Also provide all facilities and attendance to the local authorities for any other tests carried out before energizing the installation.
4. After the connection of the supply to the installation, commission all parts of the electrical installation covered by this Specification and demonstrate to the Engineer that the entire electrical installations are in perfect working order.
5. When equipment or services of a specialized nature are involved, and if it was found necessary, provide the services of a specialist from the manufacturer who shall be present at the time of testing and commissioning of this equipment. Include for all expenses incurred in this respect as no claim for additional payment will be entertained.
6. Acceptance certificate will not be issued until all testing and commissioning has been carried out to the satisfaction of the Engineer and local authorities. After local authorities 's final approval microfilm of as- built drawing shall be given to the Engineer for permanent record.
7. An amount equal to 5% of the contract value for the Electrical, Communication and Electronic works will be retained till the completion of all commissioning. This amount is in addition to the 10% retention money, which will be release after the completion of 2 years of maintenance contract.

**B. General Provisions for Electrical Work**

**1.01 Work Included**

All electrical work shown on the drawings or mentioned in B.O.Q

**1.02 Quality Assurance**

1. General Provisions contained in this section, shall apply and form a part of each and every section of specification, Division 16, Electrical.
2. The Contractor shall verify that the materials, appliances, equipment or devices he furnishes and installs under this Contract, meet the requirements of the specified codes and standards. The label of, or listing by an independent institute will be accepted as conforming with this requirement. In lieu of the label or listing. The Contractor shall submit independent proof for review by the Supervising Engineer that the materials, appliances or devices conform to established standards, including methods of test, of the country of origin.
3. In addition to the requirements shown or specified in the Contract Documents, all equipment shall be manufactured, tested and installed in accordance with the latest editions of the following standards as listed:

1. IEC  International Electrotechnical Commission.

2. BS  British Standards

3. ISO  International Standards Organization

4. VDE  Association of German Electrical Engineers

5. IES  Illuminating Engineering Society.

6. Municipality Regulations.

7. Regulations and instructions of Civil Defense Department

1. Codes and Standards listed in the specification sections are intended to provide an acceptable level of quality for materials and products. The Contractor may propose alternative codes and standards provided they are of equal or better quality than the reference codes and standards and are submitted for review and approval by the Supervising Engineer.
2. All items of labor and material required to comply with such standards and codes in accordance with the requirements of the Contract Documents shall be included. Where quantities, sizes or other requirements indicated on the drawings or herein specified are in excess of the requirements of the standards and codes, the specifications and /or drawings shall govern.
3. The electrical drawings shall serve to indicate the general layout of the various items of equipment. However, layout of equipment, accessories, specialties and wire ways are diagrammatic unless specifically shown and /or dimensioned.
4. The General arrangement of circuiting and equipment shall be as shown on the drawings. Detailed drawings and proposed deviations due to actual field conditions or other causes shall be submitted to the Supervising Engineer for review. The Contractor shall carefully examine all drawings and shall be responsible for the proper fitting of materials and equipment in each location as indicated, without substantial alterations. The Contractor shall carefully investigate the structural and finish conditions affecting his work and shall arrange such work accordingly, furnishing such fittings and accessories as may be required to meet such conditions.

**D. CONDUITS**

**PART 1 – GENERAL**

1.01 GENERAL

A. PVC conduits shall generally be allowed in CAST-IN-SITU. Surface installed Conduits (below or above false ceiling) shall be rigid steel (GI). Where heavy protection against mechanical damage is required only rigid steel (GI) conduit shall be used.

B   All conduits and conduit fittings shall comply with concerned local authorities Specifications

C   In precast concrete slabs etc. GI conduit shall be used

D   All conduits are fire retardant colored for all systems even if used in  concrete slabs.

**1.02  CONDUIT SYSTEM**

Conduit system shall be provided including all necessary fittings, supports, Accessories, all other hardware complete as required.  For underground installation UPVC conduit shall be used  All materials for caulking and sealing conduits, pipes, sleeves etc through fire rated Walls or floors, shall be approved by the concerned local authorities as similarly applicable to cable trays and Trunking.

**1.03 RELATED WORKS SPECIFIED ELSEWHERE**

1. Section 16200 Cables & Wires
2. Section 16300 Supporting Devices

**1.04  QUALITY ASSURANCE**

1. Relevant British Standards
2. Concerned local authorities rules and regulations
3. Alternative codes and standards which will satisfy the engineer that the  material offered is of equal standard to that specified.

**2.02 PVC CONDUITS**

A. All rigid PVC conduit and conduit fittings shall conform to British Standard 4607 are to be certified as suitable for use at ambient temperatures upto 55 Deg.C. Additionally, the material shall not soften or suffer any structural degradation at a temperature of 85 Deg.C and shall be non-hygroscopic and self extinguishing type.

All boxes and extension rings shall be fitted with brass inserts for the securing screws and with an earth terminal. Conduit fittings and accessories shall be of the same manufacture and shall be of the unthreaded type.

The internal and external surfaces of conduits shall be smooth and free from burrs and similar defects. The interior and ends of conduit fittings shall be free of sharp edges and corners and shall be smooth and well rounded to permit easy drawing in of cable and to prevent any damage to cable insulation.

Boxes in ceiling for lighting/fans etc. shall be of GI type.

All joints between conduits and fittings shall be watertight using vinyl cement recommended by the manufacturer of the conduit. A vinyl solvent shall be used for permanent joints and a cement of the type that shall remain in a sticky condition shall be used for expansion couplers.

A separate insulated earth wire shall be drawn into all PVC conduits.

The PVC conduits shall be installed generally in accordance with the requirements set out for metal conduits. Additionally the method of supporting PVC conduits shall allow for the longitudinal expansion and contraction of the conduit.

**2.03 CONDUIT (FLEXIBLE CONNECTIONS)**

**A.** Where conduit work has to be terminated with a flexible connection, as in the case of motors, the rigid conduit shall be terminated in a box adjacent to the motor and the connection between this box and the motor junction box made in flexible conduit. This shall be a corrosion resistant flexible metal tubing with a polyvinyl chloride sheath terminated at each end by a compression gland screwed into the connection boxes. An insulated stranded copper connection of section not less than that quoted in Table 54F of the I.E.E. Regulations shall be provided in each instance to ensure earth continuity.

**EXECUTION**

1. PVC conduits and fittings shall be joined by using sealing cement (vinyl solvent paint) to ensure a watertight joint. The cement shall be of a type that remains in a sticky condition. When PVC conduits are embedded in concrete slabs, they shall be securely held in place by fixing to shuttering and reinforcing bars. In walls, they shall be run in cut chases and fixed by saddles or crumpets.
2. Chases shall be deep enough to allow full thickness of plaster cover to be applied. Bends in PVC conduits shall be neatly made with a proper size bending spring.
3. Except when embedded in concrete slab, all conduits shall be installed parallel to the lines of the building and at a minimum of 100mm away from pipes or other non electrical services. Boxes shall be fixed independently to the building so as not to be supported by the conduits. Empty conduits when left with ends exposed for some time shall be closed with suitable plugs to prevent entry of dirt and foreign matter.
4. Conduits shall be installed in such a manner to prevent trapped condensation. Pull boxes shall be provided as required for easy drawing of wires and shall be in readily accessible locations with covers fixed by brass screws.
5. No wire is to be drawn inside conduits until they are completely erected and approved by the Engineer. The conduits shall be swabbed through to remove any dirt or loose matter before drawing of wires.
6. The sizes of conduits shall be in accordance with the number and sizes of wires to be drawn inside them as indicated in IEE or latest concerned local authorities Regulations but no conduit smaller than 20mm. shall be used. A pull wire or tape shall be provided in all empty conduits with no less than 200mm. of slack left at each end.
7. Flexible conduits shall be used for connection of motors, HVAC equipment, recessed light fittings ...etc. Fixed conduits shall be terminated in a conduit box and flexible conduit shall then connect to the equipment.
8. For flexible conduit on earth wire shall be wound around the flexible conduit and connected at each end to earth terminal.
9. The conduit system shall, in general, be surface mounted in all plant rooms, electrical rooms and in Service Tunnel.
10. The following general rules shall be adopted.

* Conduit saddles shall be used at every 50 cms where the run is straight.
* Saddles shall be used on both sides of a bend or coupling.

**F. CABLES AND WIRES**

**GENERAL**

1.01 All cables shall be designed for operation in systems where continuity of supply is the first consideration. They shall also be satisfactory in operation under the variations of current, voltage and frequency as may be met under fault and surge conditions on the system.  All materials shall be of the best quality and of the class most suitable for working under the particular condition of the systems. They must be capable of withstanding the normal variations of temperature and service conditions without disturbance or deterioration.  In general, cables and wires shall conform to the international standards and to the concerned local authorities Specifications.

**1.02  CONDUCTORS**

The conductors shall be high conductivity copper, stranded for power cables and solid for control cables' according to the type of insulation, the copper conductors will be plain or tinned.

1.03   Cables shall be installed on cable trays or on building structure as indicated on the Drawings. They shall be neatly fixed in straight lines. On cable trays, cables shall be fixed by cable clips or ties while, on building structure cable cleats shall be used. The spacing of cable supports shall be as indicated in I.E.E. Regulations table B.2M. The minimum radius of bends for cables shall be in accordance with table B.1M of the regulations with bends made neatly and uniformly.

1.04   Where single core cables are used for feeders, care shall be taken to ensure equal division of current among cables which shall be arranged in trefoil formation.

1.05  Proper cable glands of non ferrous material shall be used for cable entries into distribution boards and equipment.

1.06   Each end of each cable shall be provided with identification label lettered with feeder or circuit designation to the Engineer's instructions. The labels shall be permanently fixed in distribution boards, terminal boxes, isolators, etc. and shall be made of durable material ensuring permanent legibility.

1.07  STANDARDS

Unless otherwise specified, cables wires and terminations shall comply with the following standards as appropriate :

**Cable and Wires**

BS 1442 : Galvanized Mild Steel wire for armouring cables.

BS 2897 : Aluminium strip armour for cables

BS 6234 : Polyethene insulation and sheath for cables

BS 6360+IEC 228 : Copper conduct for cables

BS 6746+IEC 540 : PVC Insulation & Sheath for cables

BS 6346+IEC 502 : PVC Insulated Cables

BS 5467+IEC 502 : Armoured Cables

BS 6004+IEC 227 :   PVC Insulated Cables for Power and Lighting

BS 6500+IEC 227 : Insulated Flexible Cords

BS 6207+IEC 245 : Mineral Insulated Cables

**Cable Termination**

BS 4579: Performance of Mechanical and Compression Joints for Cables

BS 6081: Termination of MICC Cables

BS 6121: Mechanical Cable Glands.

All cable terminations shall comply with the concerned Client requirements.

**EXECUTION**

**GENERAL**

Cables/wires shall be installed as per the concerned local authorities regulations. Where no concerned local authorities regulations exist IEE regulations shall be followed.

**EXAMINATION**

1. Verify that interior of the building has been protected from weather
2. Ensure that all raceways are thoroughly cleaned.
3. Verify that all construction works likely to damage wires /cables have been completed.

**INSTALLATION**

1. Use suitable wire /cable pulling lubricants.
2. Support cables above accessible ceiling. Do not rest cables on ceiling panels.
3. Use suitable rollers and pulling devices.
4. Perform field inspection and testing in the presence of the Engineer.
5. Verify all earth continuities.
6. Identify all circuits (Cables) with appropriate marking devices.

**SUPPORTING SERVICES**

**GENERAL**

**1.01** **VOLTAGE**

All single phase devices shall be rated for 240/V 50 Hz and all three phase devices shall be rated for 415/V 50Hz.

**1.02 DESCRIPTION**

Provide wiring devices including switches receptacles, switchfuse units, junction boxes, control devices etc. as specified, indicated on drawings and as required for proper functioning.

**1.03 REFERENCE STANDARDS**

Lighting Switches : BS 3676 part 1/1989 & CENELECPREN60669-1

Fuse Connecting unit : BS 1362

20A DP Switch : BS 3676 part1

Switch Socket Outlet : BS 1363/1984

Metal Clad Boxes: BS 5733

Weather Proof Socket outlets: BS 1363/1984

Sentry Socket outlet: BS 7288/199

Where No reference Standard is mentioned the applicable BS standard shall apply

**PRODUCTS**

**2.01 SOCKETS**

1. Sockets shall be 250V, three pin, 16A switched type to BS 1363. Safety shutters shall cover pin holes to prevent accidental contact. Contact arrangement shall be such that contact is made on two sides of the rectangular pins of plugs.
2. UPS Socket outlets should be differentiated from the normal supply socket outlets by color (RED).
3. Sockets shall be fixed inside galvanized stamped steel boxes which shall be flush mounted in walls.
4. Pedestal mounted floor outlets shall be provided in locations where no wall or column is available
5. Sockets shall have White moulded cover plates as approved by the engineer The mounting heights for wall sockets shall be 300mm above finished floor level unless otherwise indicated on the Drawings.
6. Three phase sockets shall be of 5 pin design (3 phase + neutral + earth) as per the concerned local authorities Specifications. The current rating shall be as shown on drawings. All housing parts shall be pressure die cast in zinc base alloy and finished in hammered gray stove enamel; cable grips on the plugs shall have a rubber compression ring. The weather tightness shall be ensured by the rubber gaskets between plug and socket. Socket shall be provided with a screw-on cap. Plug top shall be provided with each socket.
7. Sockets working on normal plus emergency supply shall be provided with neon indicator which will remain illuminated even in off position.
8. Weatherproof sockets outlets shall have the weather tightness as mentioned in paragraph `E’ above and shall comply with the concerned local authorities Specifications.
9. Terminal shall be grouped in-line with terminal screws backed out and terminals shall be marked.

**2.02  JUNCTION BOXES**

The junction boxes shall be DP 250V or TP 415 with current rating as shown on drawings or indicated in schedules. DP or TP switch controlling Junction Box shall  be provided with neon lamp. Floor mounted J.B. shall be of water tight design as required by the particular equipment being fed through the J.B.  Indoor Wall mounted Junction box and its associated switch shall White moulded & provided with flex outlet.

**2.03  SWITCHES**

1. Switches shall be of minimum 10A ratings unless higher ratings are  shown on drawings.
2. Switches shall generally be flush mounted and of grid type at a height of 1200mm above finished floor level, unless otherwise indicated on the Drawings. Switches shall be White moulded cover plates as required by the engineer. Wiring terminals shall be of the screw type or solder-less pressure type having suitable conductor release arrangement. Where two or more switches are located in the same position, they shall be installed in one box and covered by a multi-gang cover plate.
3. Weatherproof switches shall have weather tightness as per Clause 2.01 (F) above.
4. Where Modular switches are employed the cover plate shall be manufactured in die cast metal with corners of square edged profile, and finished with a durable heat cured laccure. The Modular switches shall be 1 – 8 gang as indicated in drawings.

**2.04  DIMMER SWITCH FOR FLUORESCENT TUBULAR LAMP**

Remote control potentiometer unit shall be used for electronic dimmable ballast shall be used. It shall have a rotary switch for ‘ON\OFF’ function and a control voltage range with “MAX” and “MIN” trimmings.

**2.05  FUSED SWITCHED OUTLETS (If needed for any particular equipment)**

These outlets shall be to BS 4662 and provided with fuse links to BS 646 or BS 1361 or BS 1362 complete as required.

**2.06  MOUNTING BOXES**

Mounting boxes shall be 1 gang or 2 gang as specified and shall be manufactured from hot dip galvanized steel. Each box shall have brass earth terminal fitted in base and shall include ample knockouts and adjustable lugs.

**2.07  DOUBLE POLE SWITCHES**

The double pole switches shall be with indication neon lamps and shall be rated 20 amps unless otherwise mentioned. The face plate shall as per the concerned local authorities Specification G.3.2 and G.3.3.

**2.08  SPARKLESS SOCKET OUTLETS**

All outlets shall conform to degree of protection as applicable to non sparking equipment.

2.09 SPARKLESS SWITCHES

 All such switches shall conform to degree of protection as applicable to non-sparking equipment.

**2.10 JUNCTION & SERVICE BOXES**

The Junction & Floor Service boxes shall be supplied by the system supplier namely the Under Floor trunking or the Cast-in situ system as the case may be.

**2.11 UPVC TRUNKING**

Where Skirting & dado application are involved UPVC trunking of elegant profile shall be used. The system shall be capable of accepting wide range of components offering wide range of configurations. It shall be possible to use flat tees or angles & various type of adapters to navigate.

The trunking system shall be manufactured with requirements of BS 4678: Part 4 & BS 4662. Copies of test certificates shall be provided by the suppliers.

**2.12 ISOLATORS AND SWITCH FUSES**

1. Isolators and switch fuses, where mounted individually shall be of sheet steel/ Polycarbonate construction with /without doors and front operated handles. They shall be of the quick make, quick break type with removable shields over the fixed contacts, door interlocks and ‘ON/OFF’ indicators.
2. Isolators and switch fuses shall be single or triple pole with neutral, of ratings as indicated on the Drawings and provided with earth terminals. They shall be in accordance with IEC 408. The switch fuses shall be suitable for H.R.C. type fuses of Class Q1 to B.S. 88.
3. All outdoor isolators and switch fuses shall be in weather proof enclosures

**3 - EXECUTION**

**3.1 MOUNTING HEIGHT**

1. All devices shall be installed at levels as per the concerned local authorities regulations.
2. Where Outlets feed particular piece of equipment then these shall be installed as per equipment manufacturer/supplier’s requirements.
3. Where no data is available regarding the outlet for the equipment, it shall be installed at the level given by the engineer. As a guide line generally switches shall be mounted at 1350mm above finished floor level and sockets shall be fixed at 300mm above finished floor level unless

otherwise required for specified uses e.g. Above bench or near the equipment etc.

**3.2  FIXING**

A. Fix outlet boxes securely

B. Fix exposed outlet boxes to permanent inserts or lead anchors with machine screws.

**3.3  LIGHTING SWITCHES**

Locate at the strike side of the door.

**3.4  PULL BOXES /JUNCTION BOXES**

Fix pull boxes at minimum 10 Meter spacing and to limit the number of bends in conduit to not more than two 90 deg. Bends  Locate junction boxes as inconspicuously as possible but accessible after work is completed.

**E. LIGHTING SYSTEM**

**1.1 GENERAL REQUIREMENTS**

1. The work of this Division shall be governed by the following documents:

1. Conditions of Contract.

2. Instructions to Tenderers.

3. Form of Agreement.

 4. General and Special Conditions of Contract.

5. Form of Tender

 6. Appendices

7. Applicable Divisions.

1. Comply with requirements of Section 16010 electrical General Provisions.
2. It is the Contractors responsibility to be fully aware of and comply with all of the requirements of the above listed documents.

**SCOPE OF WORK**

1. Supply all labour, tools, services and equipment and provide all the materials required to complete this section of the work.
2. The lighting installation for this project shall consist of the following systems but shall not be limited to.

1. General lighting.

2. Emergency and exit lighting system as shown on drawings and luminaire  schedule.

3. Exterior and site lighting.

1. Generally the lighting installation shall be carried out by installing conduits within the building structure and walls forming a flush installation in mechanical rooms, electrical switch rooms and other service areas the installation shall be on the surface.
2. Generally some of the lighting installation may be switched utilizing   programmable low voltage switching.
3. Emergency lighting and exit signs shall be connected as shown on drawings.
4. External lighting shall be contactor controlled incorporating photo electric master control.

**QUALITY ASSURANCE**

A. Acceptable Manufacturers.

1. Subject to compliance with the requirements of the Contract documents, acceptable manufacturers are to be firm regularly engaged in the manufacturer of lighting fixtures of similar quality whose products have been in satisfactory use under similar service conditions for not less than ten years.

**1.5 DESIGN CRITERIA**

Generally, all luminaires have been selected to achieve the underlisted illumination levels for the reflectance’s of surfaces applicable, and a maintenance factor of

80% - 90%:

**Location/Function**

Archives  500

Conference Room 500

Corridors  100

Entrance Hall 400

Mechanical Plantroom 300

Meeting room  400

Offices  500

Public Areas  200

Pump Room 200

Stairs  200

Store  300

L.V. Room  300

Pantry  150

Toilets and lockers 200

Waiting Area 300

Lounge 250

Min. Service Illuminance (LUX)

Note: Max. Service illuminance shall not exceed 20% of the above levels.

**INSTALLATION OF LIGHTING FIXTURES AND LAMPS.**

1. Provide all lighting fixtures and lamps shown on the drawings luminaires schedule and data sheets attached herein.
2. Include for assembly, and mounting of all fixtures, complete with all wiring, connections, fittings, hangers, aligners, box covers and accessories which may be required for any fixture to provide a complete, safe, fully operational assembly.
3. Generally, install fixtures in accordance with applicable reflected ceiling plans and/or as directed by the Architect. In equipment rooms, shafts and similar secondary areas, install fixtures after the mechanical and other major work is roughed-in and adjust fixture locations as required.
4. Thoroughly review all ceiling types, construction details and mounting arrangements before placing fixture orders and ensure that all mounting assemblies, frames, rings and similar features are included for and match the requires installation.
5. All fixtures and fixture assemblies shall be properly secured and supported. Support fixtures independent of the ceiling construction complete with all fasteners, framing and hangers. Do not secure fixtures to mechanical ductwork or other vibration producing apparatus unless specifically detailed on the drawings.
6. Where fixtures are suspended from the structure they shall utilize self aligning box covers with an additional ground wire from the outlet through the hanger for continuity of ground.
7. Carefully co-ordinate the fixture installation with the work of other trades ensuring that the necessary depths and mounting spaces are provided. Do not alter fixture locations unless approved by the Architect.
8. All lamps shall be new and intact when the project is complete, and ready for acceptance.
9. Provide safety chains on all surface mounted or suspended fixtures.
10. The final connection to all luminaries integrated into suspended ceilings shall be by means of flexible heat resisting cable terminated at a plug and sockets ceiling rose mounted in the ceiling void directly adjacent to the luminaire. All such ceiling roses shall be appropriately rated to suit the rating of the associated sub- circuit protective device. The plug and socket ceiling rose shall be located directly above or adjacent (within a horizontal distance of 1.5m from the centre of the fixture) at the side of luminaire such that it is readily accessible for disconnection and maintenance.
11. Earthing

1. All luminaries of metallic construction shall be suitably earthed, the earth  wiring being connected by a terminal provided within each fitting specifically for this purpose.

2. Where luminaires are suspended, a cable protective conductor shall be connected between the fitting and the final sub-circuit wiring installation.

1. Luminaires Commissioning and Testing

1. At the discretion of the Engineer, make-up site test and demonstrate the  operation of special application of fixtures such as building floodlights, landscape fixtures and other decorative fixtures, and adjust their locations within a reasonable distance to obtain the effects desired to the approval of the Architect. Assist in the aligning and positioning of all adjustable fixtures, and ensure that fixtures with adjustable lamp holders are properly positioned to correspond with the lamps specified

**F. EARTHING PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

A. Grounding System including, but not limited to the following:

1. Grounding rods.

2. Grounding conductors.

3. Grounding connection bar.

4. Grounding of various systems.

1.02 RELATED SECTIONS

A. Electrical Works, General

B. Electrical Identification.

C. LV Cables and Wires

D. Underground Electrical Services.

**POTABLE WATER STEEL STORAGE TANK SPECIFICATION**

**WELDED STEEL CONSTRUCTION**

**PART 1. GENERAL**

1.01 SECTION INCLUDES

This section includes furnishing and erecting welded steel reservoir and necessary piping and appurtenances, per the following specifications, latest revision.

* 1. QUALIFICATIONS OF TANK SUPPLIER

1. The Engineer’s selection of a welded steel tank is predicated on a thorough examination of design criteria, construction methods, and optimum coating for resistance to internal and external tank corrosion. Deviations from the specified design, construction or coating details will not be permitted.
2. The bidder shall offer a new tank reservoir as supplied from a manufacturer

specializing in the design, fabrication and erection of welded water storage tanks.

1. The tank shown on the contract drawings and specified herein shall be fabricated by Tank Connection, ATEC Steel or approved equal.
2. Erection of the tank is to be by the tank manufacturer or approved contractor. The installer shall be fully responsible for the entire installation including tank erection, and the ultimate water tightness of the complete installation.
3. Strict adherence to the standards of design, fabrication, erection, product,

quality, and long-term performance, established in this Specification will be required by the Owner and Engineer.

1. Tank suppliers wishing to pre-qualify shall submit the following to the

Engineer/Owner for consideration:

1. List of tank materials, appurtenances and tank coating technical specifications.
2. Resume of job installation superintendent.
3. The contractor shall have the experience and knowledge necessary to furnish and erect the highest quality tank possible. Under no circumstances shall an inexperienced contractor be awarded the project. The contractor shall be fully responsible for the entire installation including appurtenances and the final product.
4. The components of the tank that come in contact with stored water shall be certified to meet ANSI/NSF Additives Standard.
   1. SUBMITTAL DRAWINGS AND SPECIFICATIONS
5. Construction shall be governed by the Owner’s drawings and specifications showing general dimensions and construction details. There shall be no deviation from the drawings and specifications, except upon written order from the Engineer.
6. The bidder is required to furnish, for the approval of the Engineer and at no increase in contract price, 5 sets of complete specifications and construction drawings for all work not shown in complete detail on the bidding drawings. A complete set of structural calculations shall be provided for the tank structure and foundation.
7. When approved, two sets of such prints and submittal information will be returned to the bidder marked “APPROVED FOR CONSTRUCTION”and these drawings will then govern the work detailed thereon. The approval by the Engineer of the tank supplier’s drawings shall be an approval relating only to their general conformity with the bidding drawings and specifications and shall not guarantee detail dimensions and quantities, which remains the bidder’s responsibility.

**PART 2. DESIGN CRITERIA**

2.01 TANK SIZE

1. The welded tank shall have a nominal diameter with a nominal sidewall height (to roof eave).
   1. TANK CAPACITY AND ELEVATION
2. Tank working capacity shall be according to the design drawings
3. Freeboard space in top of tank shall be according to the design drawings.
4. Tank base elevation shall be according to the design drawings

2.03 TANK DESIGN REQUIREMENTS

1. The materials, design, fabrication and erection of the welded tank shall conform to International Standard.

1. The welded steel reservoir will rest on an oiled sand base contained by a concrete ring-wall foundation.
2. The reservoir shall be furnished with piping and appurtenances as shown on the plans and as follows:

1. Inlet pipe

2. Overflow pipe

3. Outlet pipe

4. Drain pipe

5. 30" square, hinged, lockable roof hatch

6. Two shell manholes with hinged covers

7. Outside ladder with ladder gate and lock, without fall protection

8. Inside ladder without fall protection

9. Screened roof vent

10. Level indicator

11. Identification name plate

**PART 3. MATERIALS**

3.01 MANUFACTURERS

A. All materials shall be certified as international standard.

3.02 TANK MATERIALS

A. Furnish steel plate and structural shapes per AWWA D100, Section 2.

B. Steel pipe and pipe fittings shall conform to ASTM A-120.

C. Structural bolts shall conform to ASTM A-307.

D. Welding electrodes shall conform to ASTM 233 E60 or E70.

F. Asphalt board or asphalt expansion joint material shall be furnished which complies with ASTM D-994.

G. Caulking mastic shall be 100% solids epoxy or approved equal.

**PART 4. COATINGS**

4.01 INTERIOR COATING SYSTEM

1. All coatings that are in contact with potable water must be certified and on the current approved list of the National Sanitation Foundation to meet ANSI/NSF

Additives Standard No. 61.

1. Interior coating system, including coating manufacturer brand name and average DFT (dry film thickness/mils) to be as specified in bid documents.

4.02 EXTERIOR COATING SYSTEM

A. Exterior coating system, including coating manufacturer brand name and average DFT (dry film thickness/mils) to be as specified in bid documents.

**PART 5. FABRICATION**

5.01 TANK FABRICATION

A. All reservoir sub-assemblies and accessories, including shell manholes, ladders, and overflow pipes, shall be fabricated in accordance with International standards.

B. All exterior ladders, guard rails, brackets, hatch covers, pins and fasteners shall be steel that is hot dipped galvanized per ASTM A123/153 after fabrication.

1. Welded steel deck assembly per AWWA D100.
2. Alternative clear-span aluminum dome deck assembly
3. The roof shall be constructed of non-corrugated triangular aluminum panels. Panels are sealed and firmly clamped in an interlocking manner to a fully triangulated aluminum space truss system of wide flange extrusions, thus forming a dome structure.
4. The dome shall be clear span and designed to be self-supporting from

the periphery structure with primary horizontal thrust contained by an integral tension ring. The dome dead weight shall not exceed 3 pounds per square foot of surface area.

1. The dome and tank shall be designed to act as an integral unit. The

tank shall be designed to support an aluminum dome roof including all specified live loads.

1. Materials

a. Triangulated space truss: 6061-T6 aluminum struts and gussets.

b. Triangulated closure panels: .050”t 3003-H16 aluminum sheet.

c. Tension ring: 6061-T6 aluminum.

d. Fasteners: 7075-T73 anodized aluminum or series 300 stainless

steel.

e. Sealants and gaskets: gunnable silicone and neoprene rubber.

f. Dormers, doors, vents and hatches: 6061-T6, 5086-H34 or 3003-H16

aluminum.

5.02 APPURTENANCES

A. Pipe Connections

1. Overflow piping shall be nominal diameter schedule 10 carbon steel coated externally or schedule 40 PVC. A 90-degree internal weir elbow with external down comer pipe and flap valve shall be provided for the overflow.
2. Inlet and outlet connections shall conform to the sizes and locations specified on the plan sheets.
3. Outside Tank Ladders
4. An outside tank ladder shall be furnished and installed as shown on the contract drawings.
5. Safety cage and step-off platforms shall be fabricated of galvanized

steel. Ladders shall be equipped with a hinged lockable entry device.

1. Access Doors
2. Two man ways shall be provided as shown on the contract drawings in accordance with International Standards.
3. The manhole opening shall be a minimum of 24 inches in diameter. The access door (shell manhole) and the tank shell reinforcing shall comply with International Standards.
4. Roof Vent
5. A properly sized vent assembly in accordance with International Standrads shall be furnished and installed above the maximum water level of sufficient capacity so that at maximum design rate of water fill or withdrawal, the resulting interior design pressure / vacuum will not exceed +2.0 / -0.5 ounces per square inch.
6. The overflow pipe shall not be considered to be a tank vent.
7. The vent shall be so designed in construction as to prevent the

entrance of birds and/or animals by including a 4 mesh (1/4” opening size) galvanized screen. If required by the contract drawings, a 16 mesh (1/16” opening size) galvanized screen will be installed to prevent the entrance of insects. However, if the tank is located in an area where heavy frost is common during the winter months an additional pressure / vacuum relief valve must also be provided.

E. Roof Hatch

1. The manufacturer shall furnish a roof opening which shall be placed near the outside tank ladder and which shall be provided with a hinged cover and a hasp for locking. The opening shall have a clear dimension of at least thirty (30) inches square. The opening shall have a curb, at least four (4) inches in height and the cover shall have a downward overlap of at least two (2) inches.

F. Roof Perimeter Guardrail

1. Perimeter guardrail and toeboard around the perimeter of the deck

shall be provided and installed as specified on the project drawings.

G. Liquid Level Indicator

1. A liquid level indicator with stainless steel float, number board and high visibility target shall be provided and installed as detailed on the project drawings.

H. Identification Plate

1. Manufacturer’s nameplate shall list the tank serial number, tank

diameter and height, and maximum design capacity. The nameplate shall be affixed to the tank exterior sidewall location approximately five (5) feet from the grade elevation.

]**PART 6. EXECUTION**

6.01 EARTHWORK

A. All excavation, structural fill, and structural backfill in connection with foundation preparation and construction shall be done according to the requirements of the drawings and of contract documents. All trench excavation, pipe laying, and pipe bedding and backfill shall be done according to the requirements of the drawings and specifications.

6.02 CONCRETE

A. All concrete work for reservoir foundations and floor slabs shall be done according to contract documents.

6.03 FIELD EXAMINATION

A. The tank fabricator shall field verify the foundation elevation and the tolerances of the in-place foundation. Any deviations shall be reported to the

Engineer for correction before proceeding with any work. All tank piping must be in place prior to the commencement of tank erection.

6.04 TANK ERECTION

A. The CONTRACTOR shall furnish all labor, tools, scaffolding, and other equipment necessary to properly erect the tank complete and ready for use.

B. Erection shall be completed in compliance with International standards for welded steel tanks.

6.05 FIELD QUALITY CONTROL TESTING

A. After the erection of the reservoir is completed and before it is painted, it shall be tested for leaks. Any leaks that are disclosed in the shell bottom, roof, manhole, or piping shall be repaired prior to painting.

B. Inspection and testing shall be in accordance with Section 11 of AWWA D100, latest revision.

C. All defective welds shall be removed and repaired in accordance with International Standards.

D. Make available all radiographs and other testing information to the Owner’s representative during construction.

E. After completion of the work, the Contractor shall submit a written report and certification that all work has been inspected and tested and is in accordance with all applicable provisions of International Standards.

F. All costs associated with testing shall be paid by the Contractor.

**PART 7. DISINFECTION**

7.01 STANDARDS

1. The tank structure shall be disinfected at the time of testing in accordance with design Standard “Disinfection of Water Storage Facilities” using chlorination method number two. Disinfection shall be performed by a competent water treatment contractor.

**PART 8. TANK MANUFACTURER’S WARRANTY**

1. The tank manufacturer shall include a warranty on tank materials and workmanship for a specified period. As a minimum, the warranty shall provide assurance against defects in material, coatings and workmanship for a period of one (1) year.

Drawings

The set of drawings for the works are part of the bid documents.

See Volume 3: Bid Drawings – Construction of Burtinle District Administration Office

PART 3 – Conditions of Contract and Contract Forms

Section VIII. General Conditions of Contract

These General Conditions of Contract (GCC), read in conjunction with the Particular Conditions of Contract(PCC) and other documents listed therein, should be a complete document expressing fairly the rights and obligations of both parties.

These General Conditions of Contract have been developed on the basis of considerable international experience in the drafting and management of contracts, bearing in mind a trend in the construction industry towards simpler, more straightforward language.

The GCC can be used for both smaller admeasurement contracts and lump sum contracts.

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**General Conditions of Contract**

A. General

|  |  |
| --- | --- |
| 1. Definitions | * 1. Boldface type is used to identify defined terms.  1. The Accepted Contract Amount means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects. 2. The Activity Schedule is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events. 3. The Adjudicator is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in GCC 23. 4. Bank means the financing institution **named in the PCC**. 5. Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid. 6. Compensation Events are those defined in GCC Clause 42 hereunder. 7. The Completion Date is the date of completion of the Works as certified by the Project Manager, in accordance with GCC Sub-Clause 53.1. 8. The Contract is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC Sub-Clause 2.3 below. 9. The Contractor is the party whose Bid to carry out the Works has been accepted by the Employer. 10. The Contractor’s Bid is the completed bidding document submitted by the Contractor to the Employer. 11. The Contract Price is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract. 12. Days are calendar days; months are calendar months. 13. Dayworks are varied work inputs subject to payment on a time basis for the Contractor’s employees and Equipment, in addition to payments for associated Materials and Plant. 14. A Defect is any part of the Works not completed in accordance with the Contract. 15. The Defects Liability Certificate is the certificate issued by Project Manager upon correction of defects by the Contractor. 16. The Defects Liability Period is the period **named in the PCC** pursuant to Sub-Clause 34.1 and calculated from the Completion Date. 17. Drawings means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract, include calculations and other information provided or approved by the Project Manager for the execution of the Contract. 18. The Employer is the party who employs the Contractor to carry out the Works, **as specified in the PCC**. 19. Equipment is the Contractor’s machinery and vehicles brought temporarily to the Site to construct the Works. 20. “In writing” or “written” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; 21. The Initial Contract Price is the Contract Price listed in the Employer’s Letter of Acceptance. 22. The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is **specified in the PCC**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order. 23. Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works. 24. Plant is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function. 25. The Project Manager is the person **named in the PCC** (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract. 26. PCC means Particular Conditions of Contract. 27. The Site is the area **defined as such in the PCC**. 28. Site Investigation Reports are those that were included in the bidding documents and are factual and interpretative reports about the surface and subsurface conditions at the Site. 29. Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager. 30. The Start Date is **given in the PCC**. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates. 31. A Subcontractor is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site. 32. Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works. 33. A Variation is an instruction given by the Project Manager which varies the Works. 34. The Works are what the Contract requires the Contractor to construct, install, and turn over to the Employer, **as defined in the PCC**. |
| 1. Interpretation | * 1. In interpreting these GCC, words indicating one gender include all genders. Words indicating the singular also include the plural and words indicating the plural also include the singular. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.   2. If sectional completion is **specified in the PCC**, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).   3. The documents forming the Contract shall be interpreted in the following order of priority:  1. Agreement, 2. Letter of Acceptance, 3. Contractor’s Bid, 4. Particular Conditions of Contract, 5. General Conditions of Contract, including Appendix, 6. Specifications, 7. Drawings, 8. Bill of Quantities,[[19]](#footnote-19) and 9. any other document **listed in the PCC** as forming part of the Contract. |
| 1. Language and Law | * 1. The language of the Contract and the law governing the Contract are **stated in the PCC**.   2. Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Employer’s country when   (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country; or  (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country. |
| 1. Project Manager’s Decisions | * 1. Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the Contractor in the role representing the Employer. |
| 1. Delegation | * 1. Otherwise **specified in the PCC,** the Project Manager may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may revoke any delegation after notifying the Contractor. |
| 1. Communica­tions | * 1. Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered. |
| 1. Subcontracting | * 1. The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor’s obligations. |
| 1. Other Contractors | * 1. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as **referred to in the PCC.** The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification. |
| 1. Personnel and Equipment | * 1. The Contractor shall employ the key personnel and use the equipment identified in its Bid, to carry out the Works or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.   2. If the Project Manager asks the Contractor to remove a person who is a member of the Contractor’s staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.   3. If the Employer, Project Manager or Contractor determines, that any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with Clause 9.2 above. |
| 1. Employer’s and Contractor’s Risks | * 1. The Employer carries the risks which this Contract states are Employer’s risks, and the Contractor carries the risks which this Contract states are Contractor’s risks. |
| 1. Employer’s Risks | * 1. From the Start Date until the Defects Liability Certificate has been issued, the following are Employer’s risks:  1. The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to    1. use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or    2. negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor. 2. The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer’s design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.    1. From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Employer’s risk except loss or damage due to 3. a Defect which existed on the Completion Date, 4. an event occurring before the Completion Date, which was not itself an Employer’s risk, or 5. the activities of the Contractor on the Site after the Completion Date. |
| 1. Contractor’s Risks | 12.1 From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer’s risks are Contractor’s risks. |
| 1. Insurance | * 1. The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles **stated in the PCC** for the following events which are due to the Contractor’s risks:  1. loss of or damage to the Works, Plant, and Materials; 2. loss of or damage to Equipment; 3. loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and 4. personal injury or death.    1. Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager’s approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.    2. If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.    3. Alterations to the terms of an insurance shall not be made without the approval of the Project Manager.    4. Both parties shall comply with any conditions of the insurance policies. |
| 1. Site Data | * 1. The Contractor shall be deemed to have examined any Site Data **referred to in the PCC**, supplemented by any information available to the Contractor. |
| 1. Contractor to Construct the Works | * 1. The Contractor shall construct and install the Works in accordance with the Specifications and Drawings. |
| 1. The Works to Be Completed by the Intended Completion Date | * 1. The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date. |
| 1. Approval by the Project Manager | * 1. The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.   2. The Contractor shall be responsible for design of Temporary Works.   3. The Project Manager’s approval shall not alter the Contractor’s responsibility for design of the Temporary Works.   4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.   5. All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before this use. |
| 1. Safety | * 1. The Contractor shall be responsible for the safety of all activities on the Site. |
| 1. Discoveries | * 1. Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager’s instructions for dealing with them. |
| 1. Possession of the Site | * 1. The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date **stated in the PCC,** the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event. |
| 1. Access to the Site | * 1. The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out. |
| 1. Instructions, Inspections and Audits | * 1. The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.   2. The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and subconsultants to keep, accurate and systematic accounts and records in respect of the Works in such form and details as will clearly identify relevant time changes and costs.   3. The Contractor shall permit and shall cause its Subcontractors and subconsultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and/or the accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the UN. The Contractor’s and its Subcontractors’ and subconsultants’ attention is drawn to Sub-Clause 25.1 which provides, inter alia, that acts intended to materially impede the exercise of the UN’s inspection and audit rights provided for under Sub-Clause 22.2 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the UN’s prevailing sanctions procedures). |
| 1. Appointment of the Adjudicator | * 1. The Adjudicator shall be appointed jointly by the Employer and the Contractor, at the time of the Employer’s issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority **designated in the PCC**, to appoint the Adjudicator within 14 days of receipt of such request.   2. Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority **designated in the PCC** at the request of either party, within 14 days of receipt of such request. |
| 1. Procedure for Disputes | * 1. If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager’s decision.   2. The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.   3. The Adjudicator shall be paid by the hour at the **rate specified in the** **PCC,** together with reimbursable expenses of the types **specified in the PCC**, and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator’s written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator’s decision shall be final and binding.   4. The arbitration shall be conducted in accordance with the arbitration procedures published by the institution named and in the place **specified** **in the PCC.** |
| 1. Corrupt and Fraudulent Practices | * 1. The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Appendix to the GCC.   2. The Employer requires the Contractor to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee. |

B. Time Control

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| 1. Program | * 1. Within the time **stated in the PCC**, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.   2. An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.   3. The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period **stated in the PCC.** If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount **stated in the PCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Contractor shall provide an updated Activity Schedule within 14 days of being instructed to by the Project Manager.   4. The Project Manager’s approval of the Program shall not alter the Contractor’s obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events. |
| 1. Extension of the Intended Completion Date | * 1. The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.   2. The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date. |
| 1. Acceleration | * 1. When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Contractor.   2. If the Contractor’s priced proposals for an acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation. |
| 1. Delays Ordered by the Project Manager | * 1. The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works. |
| 1. Management Meetings | * 1. Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.   2. The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting. |
| 1. Early Warning | * 1. The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.   2. The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager. |

C. Quality Control

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| 1. Identifying Defects | * 1. The Project Manager shall check the Contractor’s work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor’s responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect. |
| 1. Tests | * 1. If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event. |
| 1. Correction of Defects | * 1. The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is **defined in the PCC.** The Defects Liability Period shall be extended for as long as Defects remain to be corrected.   2. Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager’s notice. |
| 1. Uncorrected Defects | * 1. If the Contractor has not corrected a Defect within the time specified in the Project Manager’s notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount. |

D. Cost Control

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| 1. Contract Price[[20]](#footnote-20) | * 1. The Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item. |
| 1. Changes in the Contract Price[[21]](#footnote-21) | * 1. If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change. The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.   2. If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities. |
| 1. Variations | * 1. All Variations shall be included in updated Programs[[22]](#footnote-22) produced by the Contractor.   2. The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.   3. If the Contractor’s quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager’s own forecast of the effects of the Variation on the Contractor’s costs.   4. If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.   5. The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.   6. If the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in Sub-Clause 39.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work. [[23]](#footnote-23) |
| 1. Cash Flow Forecasts | * 1. When the Program,[[24]](#footnote-24) is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates. |
| 1. Payment Certificates | * 1. The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.   2. The Project Manager shall check the Contractor’s monthly statement and certify the amount to be paid to the Contractor.   3. The value of work executed shall be determined by the Project Manager.   4. The value of work executed shall comprise the value of the quantities of work in the Bill of Quantities that have been completed.[[25]](#footnote-25)   5. The value of work executed shall include the valuation of Variations and Compensation Events.   6. The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information. |
| 1. Payments | * 1. Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.   2. If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.   3. Unless otherwise stated, all payments and deductions shall be paid or charged in the proportions of currencies comprising the Contract Price.   4. Items of the Works for which no rate or price has been entered in shall not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract. |
| 1. Compensation Events | * 1. The following shall be Compensation Events:  1. The Employer does not give access to a part of the Site by the Site Possession Date pursuant to GCC Sub-Clause 20.1. 2. The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract. 3. The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time. 4. The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects. 5. The Project Manager unreasonably does not approve a subcontract to be let. 6. Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site. 7. The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons. 8. Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor. 9. The advance payment is delayed. 10. The effects on the Contractor of any of the Employer’s Risks. 11. The Project Manager unreasonably delays issuing a Certificate of Completion.     1. If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.     2. As soon as information demonstrating the effect of each Compensation Event upon the Contractor’s forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor’s forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager’s own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.     3. The Contractor shall not be entitled to compensation to the extent that the Employer’s interests are adversely affected by the Contractor’s not having given early warning or not having cooperated with the Project Manager. |
| 1. Tax | * 1. The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of GCC Clause 44. |
| 1. Currencies | * 1. Where payments are made in currencies other than the currency of the Employer’s country **specified in the PCC,** the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Contractor’s Bid. |
| 1. Price Adjustment | * 1. Prices shall be adjusted for fluctuations in the cost of inputs only if **provided for in the PCC.** If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type specified below applies to each Contract currency:   **Pc = Ac + Bc Imc/Ioc**  where:  Pc is the adjustment factor for the portion of the Contract Price payable in a specific currency “c.”  Ac and Bc are coefficients[[26]](#footnote-26) **specified in the PCC,** representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in that specific currency “c;” and  Imc is the index prevailing at the end of the month being invoiced and Ioc is the index prevailing 28 days before Bid opening for inputs payable; both in the specific currency “c.”   * 1. If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs. |
| 1. Retention | * 1. The Employer shall retain from each payment due to the Contractor the proportion **stated in the PCC** until Completion of the whole of the Works.   2. Upon the issue of a Certificate of Completion of the Works by the Project Manager, in accordance with GCC 51.1, half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected. The Contractor may substitute retention money with an “on demand” Bank guarantee. |
| 1. Liquidated Damages | * 1. The Contractor shall pay liquidated damages to the Employer at the rate per day **stated in the PCC** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount **defined in the PCC.** The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.   2. If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC Sub-Clause 41.1. |
| 1. Bonus | * 1. The Contractor shall be paid a Bonus calculated at the rate per calendar day **stated in the PCC** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete. |
| 1. Advance Payment | * 1. The Employer shall make advance payment to the Contractor of the amounts **stated in the PCC** by the date **stated in the PCC,** against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.   2. The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.   3. The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages. |
| 1. Securities | * 1. The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount **specified in the PCC,** by a bank or surety acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a Bank Guarantee, and until one year from the date of issue of the Completion Certificate in the case of a Performance Bond. |
| 1. Dayworks | * 1. If applicable, the Dayworks rates in the Contractor’s Bid shall be used only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.   2. All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.   3. The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms. |
| 1. Cost of Repairs | * 1. Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor’s cost if the loss or damage arises from the Contractor’s acts or omissions. |

E. Finishing the Contract

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| 1. Completion | * 1. The Contractor shall request the Project Manager to issue a Certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the whole of the Works is completed. |
| 1. Taking Over | * 1. The Employer shall take over the Site and the Works within seven days of the Project Manager’s issuing a certificate of Completion. |
| 1. Final Account | * 1. The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor’s account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate. |
| 1. Operating and Maintenance Manuals | * 1. If “as built” Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates **stated in the PCC.**   2. If the Contractor does not supply the Drawings and/or manuals by the dates **stated in the PCC** pursuant to GCC Sub-Clause 56.1**,** or they do not receive the Project Manager’s approval, the Project Manager shall withhold the amount **stated in the PCC** from payments due to the Contractor. |
| 1. Termination | * 1. The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.   2. Fundamental breaches of Contract shall include, but shall not be limited to, the following:  1. the Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager; 2. the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days; 3. the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation; 4. a payment certified by the Project Manager is not paid by the Employer to the Contractor within 84 days of the date of the Project Manager’s certificate; 5. the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager; 6. the Contractor does not maintain a Security, which is required; 7. the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as **defined in the PCC**; or 8. if the Contractor, in the judgment of the Employer, has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Client may, after giving fourteen (14) days written notice to the Contractor, terminate the Contract and expel him from the Site.    1. When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC Sub-Clause 56.2 above, the Project Manager shall decide whether the breach is fundamental or not.    2. Notwithstanding the above, the Employer may terminate the Contract for convenience.    3. If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible. |
| 1. Payment upon Termination | * 1. If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as **specified in the PCC.** Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.   2. If the Contract is terminated for the Employer’s convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor’s personnel employed solely on the Works, and the Contractor’s costs of protecting and securing the Works, and less advance payments received up to the date of the certificate. |
| 1. Property | * 1. All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor’s default. |
| 1. Release from Performance | * 1. If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made. |
| 1. Suspension of Bank Loan or Credit | * 1. In the event that the Bank suspends the Loan or Credit to the Employer, from which part of the payments to the Contractor are being made:  1. The Employer is obligated to notify the Contractor of such suspension within 7 days of having received the Bank’s suspension notice. 2. If the Contractor has not received sums due it within the 28 days for payment provided for in Sub-Clause 40.1, the Contractor may immediately issue a 14-day termination notice. |

**APPENDIX TO GENERAL CONDITIONS**

**Policy- Corrupt and Fraudulent Practices**

***(Text in this Appendix shall not be modified)***

“**Fraud and Corruption:**

1.16 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of UN-financed contracts. In pursuance of this policy, the Bank:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

(i) “Corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “Collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “Coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “Obstructive practice” is

(aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the UN’s inspection and audit rights provided for under paragraph 1.16(e) below.

(b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

(c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

(d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank’s sanctions procedures, including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated;

(e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the UN.”

Section IX. Particular Conditions of Contract

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| **A. General** | |
| **GCC 1.1 (d)** | The financing institution is: **the World Bank Multi Partner Fund (MPF)** |
| **GCC 1.1 (s)** | The Employer is **Ministry of Finance, Federal Republic of Somalia** |
| **GCC 1.1 (v)** | The Intended Completion Date for the whole of the Works shall be**: Within 20 weeks from date of contract signing** |
| **GCC 1.1 (y)** | The Project Manager is : **Eng. Abdullahi Abdinur Hamud,**  **Engineer, SFF-LD Project** |
| **GCC 1.1 (aa)** | The Site is located in **Burtinle and** is defined in drawings **as provided in Section XI – of the contract** |
| **GCC 1.1 (dd)** | The Start Date shall be: **[TBD after Contract Award]** |
| **GCC 1.1 (hh)** | The Works consist of: **Construction of District Administration Office Block which is to build on a plot of a total floor area of 548 square meters in Burtinle town, and will consist of eleven (11) offices, two (2) meeting rooms, seven (7) wash rooms including one self-contained washroom, one (1) elevated Water Tank, one (1) ground water Tank and one (1) septic Tank.** |
| **GCC 2.2** | Sectional Completions are: **Not Applicable** |
| **GCC 2.3(i)** | The following documents also form part of the Contract:   1. Contract Agreement 2. the Letter of Acceptance to the successful bidder 3. the Letter of Bid 4. the addenda Nos \_\_\_\_\_\_\_\_(if any) 5. the General Conditions of Contract, including appendix; 6. the Particular Conditions 7. Performance Security (Bank Guarantee) 8. Work plan of the successful Bidder 9. the Specification 10. Activity schedule and 11. the Drawings/design |
| **GCC 3.1** | The language of the contract is **English***.*  The law that applies to the Contract is the law of **Federal Republic of Somalia***.* |
| **GCC 5.1** | The Project manager **may** delegate any of his duties and responsibilities. |
| **GCC 8.1** | schedule of other contractors: **N/A** |
| **GCC 13.1** | The minimum insurance amounts and deductibles shall be: **in accordance of the applicable law of the country** |
| **GCC 20.1** | The Site Possession Date(s) shall be: **within seven days from date of contract signing** |
| **GCC 23.1 &**  **GCC 23.2** | Appointing Authority for the Adjudicator: **Office of the Solicitor General, Federal Republic of Somalia** |
| **GCC 24.3** | Hourly rate and types of reimbursable expenses to be paid to the Adjudicator: **N/A** |
| **GCC 24.4** | Any dispute, controversy, or claim arising out of or relating to this Contract, or breach, termination, or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.”  The place of arbitration shall be: **Mogadishu, Federal Republic of Somalia** |
| **B. Time Control** | |
| **GCC 26.1** | The Contractor shall submit for approval a Program for the Works within **Seven (7)** days from the date of the Letter of Acceptance. |
| **GCC 26.3** | The period between Program updates is **60-days**  The amount to be withheld for late submission of an updated Program is **2%** |
| **C. Quality Control** | |
| **GCC 34.1** | The Defects Liability Period is: **360-days** |
| **D. Cost Control** | |
| **GCC 44.1** | The currency of the Employer’s country is: **USD**. |
| **GCC 45.1** | * + - 1. The Contract **is not** subject to price adjustment in accordance with GCC Clause 45, and the following information regarding coefficients **does not** apply.       2. The coefficients for adjustment of prices are: **N/A** |
| **GCC 46.1** | The proportion of payments retained is: **10%** |
| **GCC 47.1** | The liquidated damages for the whole of the Works **are 0.001% per day of the Final Contract Price .** The maximum amount of liquidated damages for the whole of the Works is **10%** of the final Contract Price. |
| **GCC 48.1** | The Bonus for the whole of the Works is **N/A** per day. The maximum amount of Bonus for the whole of the Works is **N/A** of the final Contract Price. |
| **GCC 49.1** | The Advance Payments shall be: **twenty percent (20%) and shall be paid to the Contractor no later than 30 days from date of receipt of the performance security (Bank Guarantee)..** |
| **GCC 50.1** | The Performance Security amount is:  (a) Bank Guarantee: **10% of the Contract sum**. |
| **E. Finishing the Contract** | |
| **GCC 56.1** | The date by which operating and maintenance manuals are required is: **N/A**  The date by which “as built” drawings are required is: **Twenty (20) working days after completion.** |
| **GCC 56.2** | The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required in GCC 58.1 is: **3% of the contract price** |
| **GCC 57.2 (g)** | The maximum number of days is: **100 days** |
| **GCC 58.1** | The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is **30%.** |

Section X - Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

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Letter of Acceptance

***[ on letterhead paper of the*** Employer***]***

*. . . . . . .* ***[date]****. . . . . . .*

To: . . . . . . . . . . ***[*** ***name and address of the Contractor]*** . . . . . . . . . .

Subject: . . . . . . . . . . ***[Notification of Award Contract No]***. . . . . . . . . . .

This is to notify you that your Bid dated . . . . ***[insert date] . .*** . . for execution of the . . . . . . . . . ***.[insert name of the contract and identification number, as given in the PCC]***. . . . . . . . . . for the Accepted Contract Amount of . . . . . . . . ***.[insert*** ***amount in numbers and words and name of currency]***, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose the of the Performance Security Form included in Section X. Contract Forms, of the Bidding Document.

***[Choose one of the following statements:]***

We accept that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***[insert the name of Adjudicator proposed by the Bidder]*** be appointed as the Adjudicator.

***[or]***

We do not accept that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***[insert the name of the Adjudicator proposed by the Bidder]*** be appointed as the Adjudicator, and by sending a copy of this Letter of Acceptance to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***[insert name of the Appointing Authority]***, the Appointing Authority, we are hereby requesting such Authority to appoint the Adjudicator in accordance with ITB 43.1 and GCC 23.1.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the . . . . . .day of . . . . . . . . . . . . . . . . ., . . . . . . ., between . . . . . ***[name of the*** Employer***]***. . . . .. . . . . (hereinafter “the Employer”), of the one part, and . . . . . ***[name of the Contractor]***. . . . .(hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as . . . . . ***[name of the Contract]****. . . . .*should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

1. the Letter of Acceptance
2. the Letter of Bid
3. the addenda Nos \_\_\_\_\_\_\_\_(if any)
4. the Particular Conditions
5. the General Conditions of Contract, including appendix;
6. the Specification
7. the Drawings
8. Bill of Quantities; [[27]](#footnote-27) and
9. any other document **listed in the PCC** as forming part of the Contract,

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of . . . . . [name of the borrowing country]. . . . .on the day, month and year specified above.

|  |  |  |  |
| --- | --- | --- | --- |
| Signed by: |  | Signed by: |  |
| for and on behalf of the Employer | | for and on behalf the Contractor | |
| in the presence of: |  | in the presence of: |  |
| Witness, Name, Signature, Address, Date | | Witness, Name, Signature, Address, Date | |

Performance Security (Bank Guarantee)

**Option 1: (Bank Guarantee)**

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[insert name and Address of* Employer*]*

**Date:** \_ *[Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that \_ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of \_ *[insert name of contract and brief description of* Works*]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_\_\_) *[insert amount in words]*,[[28]](#footnote-28)1 such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary’s complying demand supported by the Beneficiary’s statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the …. Day of ……, 2… [[29]](#footnote-29)2, and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   
*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

1. In lump sum contracts, delete “rates and prices and the.” [↑](#footnote-ref-1)
2. For lump sum contracts, delete “unit rates and prices and shown in the Schedule of Adjustment Data are reasonable” and replace with “Lump Sum.” [↑](#footnote-ref-2)
3. An individual firm is considered a domestic bidder for purposes of the margin of preference if it is registered in the country of the Employer, has more than 50 percent ownership by nationals of the country of the Employer, and if it does not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign contractors. JVs are considered as domestic bidders and eligible for domestic preference only if the individual member firms are registered in the country of the Employer or have more than 50 percent ownership by nationals of the country of the Employer, and the JV shall be registered in the country of the Borrower. The JV shall not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign firms. JVs between foreign and national firms will not be eligible for domestic preference. [↑](#footnote-ref-3)
4. In lump sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule.” [↑](#footnote-ref-4)
5. Daywork is work carried out following instructions of the Project Manager and paid for on the basis of time spent by workers, and the use of materials and the Contractor’s equipment, at the rates quoted in the Bid. For Daywork to be priced competitively for Bid evaluation purposes, the Employer must list tentative quantities for individual items to be costed against Daywork (e.g., a specific number of tractor driver staff-days, or a specific tonnage of Portland cement), to be multiplied by the bidders’ quoted rates and included in the total Bid price. [↑](#footnote-ref-5)
6. Non performance, as decided by the Employer, shall include all contracts where (a) non performance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Non performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Non performance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted. [↑](#footnote-ref-6)
7. This requirement also applies to contracts executed by the Bidder as JV member. [↑](#footnote-ref-7)
8. The Bidder shall provide accurate information on the letter of Bid about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five years. A consistent history of court/arbitral awards against the Bidder or any member of a joint venture may result in disqualifying the Bidder. [↑](#footnote-ref-8)
9. The similarity shall be based on the physical size, complexity, methods/technology and/or other characteristics described in Section VII, Work’s Requirements. Summation of number of small value contracts (less than the value specified under requirement) to meet the overall requirement will not be accepted. [↑](#footnote-ref-9)
10. Substantial completion shall be based on 80% or more works completed under the contract. [↑](#footnote-ref-10)
11. For contracts under which the Bidder participated as a joint venture member or sub-contractor, only the Bidder’s share, by value, shall be considered to meet this requirement. [↑](#footnote-ref-11)
12. In the case of JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whether the JV meets the requirement of total number of contracts, only the number of contracts completed by all members each of value equal or more than the minimum value required shall be aggregated. [↑](#footnote-ref-12)
13. For contracts under which the Bidder participated as a joint venture member or sub-contractor, only the Bidder’s share shall be counted to meet this requirement. [↑](#footnote-ref-13)
14. Volume, number or rate of production of any key activity can be demonstrated in one or more contracts combined if executed during same time period. The rate of production shall be the annual production rate for the key construction activity (or activities). [↑](#footnote-ref-14)
15. Requirement can be met through a Specialized Sub-contractor [↑](#footnote-ref-15)
16. *Bidder to use as appropriate* [↑](#footnote-ref-16)
17. If the most recent set of financial statements is for a period earlier than 12 months from the date of bid, the reason for this should be justified. [↑](#footnote-ref-17)
18. If applicable. [↑](#footnote-ref-18)
19. In lump sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule.” [↑](#footnote-ref-19)
20. In lump sum contracts, replace GCC Sub-Clauses 36.1 as follows:

    36.1 The Contractor shall provide updated Activity Schedules within 14 days of being instructed to by the Project Manager. The Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for materials on site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule. [↑](#footnote-ref-20)
21. In lump sum contracts, replace entire GCC Clause 37 with new GCC Sub-Clause 37.1, as follows:

    37.1 The Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor’s own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule. [↑](#footnote-ref-21)
22. In lump sum contracts, add “and Activity Schedules” after “Programs.” [↑](#footnote-ref-22)
23. In lump sum contracts, delete this paragraph. [↑](#footnote-ref-23)
24. In lump sum contracts, add “or Activity Schedule” after “Program.” [↑](#footnote-ref-24)
25. In lump sum contracts, replace this paragraph with the following: “The value of work executed shall comprise the value of completed activities in the Activity Schedule.” [↑](#footnote-ref-25)
26. The sum of the two coefficients Ac and Bc should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulae for all currencies, since coefficient A, for the nonadjustable portion of the payments, is a very approximate figure (usually 0.15) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency are added to the Contract Price. [↑](#footnote-ref-26)
27. In lump sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule.” [↑](#footnote-ref-27)
28. *1 The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.* [↑](#footnote-ref-28)
29. *2 Insert the date twenty-eight days after the expected completion date as described in GC Clause 53.1. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: “The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.”* [↑](#footnote-ref-29)