

INVITATION TO TENDER

PROCURING ENTITY: Kenya Reinsurance Corporation Ltd

TENDER NUMBER: KRC/1670/2021/099

CONTRACT NAME AND DESCRIPTION:

Proposed Fitout of Kenya Reinsurance Corporation Uganda - SMC Ltd Offices on First Floor Level, Redstone House, Plot 07 Bandali Rise, Kampala, Uganda

1. The **Kenya Reinsurance Corporation Ltd** invites sealed tenders for the *Proposed Fitout of Kenya Reinsurance Corporation Uganda - SMC Ltd Offices on First Floor Level, Redstone House, Plot 07 Bandali Rise, Kampala, Uganda*
2. Tendering will be conducted under **International** open competitive method (National/International) using a standardized tender document. Tendering is open to **all construction enterprises**.
3. Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours **0800 to 1700 hours** at the address given below.
4. Tender documents may be obtained electronically from the **Kenya Reinsurance Corporation** Website(s) **www.kenyare.co.ke**. Tender documents obtained electronically will be free of charge.
5. Tender documents may be viewed and downloaded for free from the website **www.kenyare.co.ke**. Tenderers who download the tender document must forward their particulars immediately to **procurement@kenyare.co.ke, +254703 083 200, P.O Box 30271-00100, Nairobi** to facilitate any further clarification or addendum.
6. Tenders shall be quoted in USD and shall include all taxes. Tenders shall remain valid for **(120)** days from the date of opening of tenders.
7. All Tenders must be accompanied by a **Tender security of USD 3000**.
8. The Tenderer shall **chronologically serialize all pages** of the tender documents submitted.
9. Completed tenders must be delivered to the address below on or before **1000 hours on 14th September 2021**. Electronic Tenders **will** be permitted & sent to kenyareprocurement@kenyare.co.ke
10. Tenders will be opened immediately after the deadline date and time specified above or any deadline date and time specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
11. Late tenders will be rejected. The addresses referred to above are:

Address for obtaining further information

Kenya Reinsurance Corporation Ltd,
Email: procurement@kenyare.co.ke,
Tel: +254703 083 200.

A. Address for Submission of Tenders.

Kenya Reinsurance Corporation Ltd,
P.O Box 30271-00100, Nairobi,
Attn: Managing Director,
Nairobi City, Taifa Road, Reinsurance Plaza, 14th Floor, Supply Chain Office.

PART 1 - TENDERING PROCEDURES

SECTION I: INSTRUCTIONS TO TENDERERS

A General Provisions

1. **Scope of Tender**

- 1.1 The Procuring Entity as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The name, identification, and number of lots (contracts) of this Tender Document are **specified in the TDS**.

2. **Fraud and Corruption**

- 2.1 The Procuring Entity requires compliance with the provisions of the Public Procurement and Asset Disposal Act, 2015, Section 62 "Declaration not to engage in corruption". The tender submitted by a person shall include a declaration that the person shall not engage in any corrupt or fraudulent practice and a declaration that the person or his or her sub-contractors are not debarred from participating in public procurement proceedings.
- 2.2 The Procuring Entity requires compliance with the provisions of the Competition Act 2010, regarding collusive practices in contracting. Any tenderer found to have engaged in collusive conduct shall be disqualified and criminal and/or civil sanctions may be imposed. To this effect, Tenders shall be required to complete and sign the "Certificate of Independent Tender Determination" annexed to the Form of Tender.
- 2.3 Unfair Competitive Advantage - Fairness and transparency in the tender process require that the firms or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to this tender. To that end, the Procuring Entity shall indicate in the **Data Sheet** and make available to all the firms together with this tender document all information that would in that respect give such firm any unfair competitive advantage over competing firms.
- 2.4 Unfair Competitive Advantage -Fairness and transparency in the tender process require that the Firms or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to this tender being tendered for. The Procuring Entity shall indicate in the **TDS** firms (if any) that provided consulting services for the contract being tendered for. The Procuring Entity shall check whether the owners or controllers of the Tenderer are same as those that provided consulting services. The Procuring Entity shall, upon request, make available to any tenderer information that would give such firm unfair competitive advantage over competing firms.

3. **Eligible Tenderers**

- 3.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 3.7 or any combination of such entities 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. Public employees and their close relatives (*spouses, children, brothers, sisters and uncles and aunts*) are not eligible to participate in the tender. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire 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 tendering process and, in the event the JV is awarded the Contract, during contract execution. The maximum number of JV members shall be specified in the **TDS**.
- 3.2 Public Officers of the Procuring Entity, their Spouses, Child, Parent, Brothers or Sister. Child, Parent, Brother or Sister of a Spouse, their business associates or agents and firms/organizations in which they have a substantial or controlling interest shall not be eligible to tender or be awarded a contract. Public Officers are also not allowed to participate in any procurement proceedings.
- 3.3 A Tenderer shall not have a conflict of interest. Any tenderer found to have a conflict of interest shall be disqualified. A tenderer may be considered to have a conflict of interest for the purpose of this tendering process, if the tenderer:
 - a) Directly or indirectly controls, is controlled by or is under common control with another tenderer; or
 - b) Receives or has received any direct or indirect subsidy from another tenderer; or

- c) Has the same legal representative as another tenderer; or
- d) Has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process; or
- e) 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 tender; or
- f) any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as Engineer for the Contract implementation; or
- g) Would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the contract specified in this Tender Document or
- h) Has a close business or family relationship with a professional staff of the Procuring Entity who:
 - i) are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract; or
 - ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.

3.4 A tenderer shall not be involved in corrupt, coercive, obstructive, collusive, or fraudulent practice. A tenderer that is proven to have been involved any of these practices shall be automatically disqualified.

3.5 A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. A firm that is not a tenderer, or a JV member may participate as a subcontractor in more than one tender. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender.

3.6 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT 4.8. A Tenderer shall be deemed to have the nationality of a country if the Tenderer 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 subcontractors or sub-consultants for any part of the Contract including related Services.

3.7 Tenderer that has been debarred from participating in public procurement shall be ineligible to tender or be awarded a contract. The list of debarred firms and individuals is available from the website of PPRA www.ppra.go.ke.

3.8 Tenderers that are state-owned enterprises or institutions may be eligible to compete and be awarded a Contract(s) only if they are accredited by PPRA to be (i) a legal public entity of the state Government and/or public administration, (ii) financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and (iii) operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it compete with firms in the private sector on an equal basis.

3.9 A Firms and individuals may be ineligible if their countries of origin (a) as a matter of law or official regulations, Kenya 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, Kenya 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. A tenderer shall provide such documentary evidence of eligibility satisfactory to the Procuring Entity, as the Procuring Entity shall reasonably request.

- 3.10 Foreign tenderers are required to source at least forty (40%) percent of their contract inputs (in supplies, subcontracts, and labor) from national suppliers and contractors. To this end, a foreign tenderer shall provide in its tender documentary evidence that this requirement is met. Foreign tenderers not meeting this criterion will be automatically disqualified. Information required to enable the Procuring Entity to determine if this condition is met shall be provided in for this purpose is be provided in *"SECTION III - EVALUATION AND QUALIFICATION CRITERIA, Item 9"*.
- 3.11 Pursuant to the eligibility requirements of ITT 4.10, a tender is considered a foreign tenderer if the tenderer is not registered in Kenya or if the tenderer is registered in Kenya and has less than 51 percent ownership by Kenyan Citizens. JVs are considered as foreign tenderers if the individual member firms are not registered in Kenya or if are registered in Kenya and have less than 51 percent ownership by Kenyan citizens. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.
- 3.12 The National Construction Authority Act of Kenya requires that all local and foreign contractors be registered with the National Construction Authority and be issued with a Registration Certificate before they can undertake any construction works in Kenya. Registration shall not be a condition for tender, but it shall be a condition of contract award and signature. A selected tenderer shall be given opportunity to register before such award and signature of contract. Application for registration with National Construction Authority may be accessed from the website www.nca.go.ke.
- 3.13 The Competition Act of Kenya requires that firms wishing to tender as Joint Venture undertakings which may prevent, distort or lessen competition in provision of services are prohibited unless they are exempt in accordance with the provisions of Section 25 of the Competition Act, 2010. JVs will be required to seek for exemption from the Competition Authority. Exemption shall not be a condition for tender, but it shall be a condition of contract award and signature. A JV tenderer shall be given opportunity to seek such exemption as a condition of award and signature of contract. Application for exemption from the Competition Authority of Kenya may be accessed from the website www.cak.go.ke
- 3.14 A Kenyan tenderer shall provide evidence of having fulfilled his/her tax obligations by producing a valid tax clearance certificate or tax exemption certificate issued by the Kenya Revenue Authority.

4. Eligible Goods, Equipment, and Services

- 4.1 Goods, equipment, and services to be supplied under the Contract may have their origin in any country that is not eligible under ITT 3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment, and services.
- 4.2 Any goods, works and production processes with characteristics that have been declared by the relevant national environmental protection agency or by other competent authority as harmful to human beings and to the environment shall not be eligible for procurement.

5. Tenderer's Responsibilities

- 5.1 The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.
- 5.2 The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the tenderer's own expense.
- 5.3 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against all liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the inspection.
- 5.4 The tenderer shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including charts, as necessary or required.

B. Contents of Tender Documents

6. Sections of Tender Document

6.1 The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITT 8.

PART 1 Tendering Procedures

- i) Section I - Instructions to Tenderers (ITT)
- ii) Section II - Tender Data Sheet (TDS)
- iii) Section III - Evaluation and Qualification Criteria
- iv) Section IV - Tendering Forms

PART 2 Works Requirements

- i) Section V - Drawings
- ii) Section VI - Specifications
- iii) Section VII - Bills of Quantities

PART 3 Conditions of Contract and Contract Forms

- i) Section VIII - General Conditions of Contract (GCC)
- ii) Section IX - Special Conditions of Contract (SC)
- iii) Section X - Contract Forms

6.2 The Invitation to Tender Document (ITT) issued by the Procuring Entity is not part of the Contract documents.

6.3 Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 8. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.

6.4 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender document.

7. Site Visit

7.1 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Required Services and its surroundings and obtain all information that may be necessary for preparing the Tender and entering a contract for the Services. The costs of visiting the Site shall be at the Tenderer's own expense.

8. Pre-Tender Meeting

8.1 The Procuring Entity shall specify in the **TDS** if a pre-tender meeting will be held, when and where. The Procuring Entity shall also specify in the **TDS** if a pre-arranged pretender site visit will be held and when. The Tenderer's designated representative is invited to attend a pre-arranged pretender visit of the site of the works. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

8.2 The Tenderer is requested to submit any questions in writing, to reach the Procuring Entity not later than the period specified in the **TDS** before the meeting.

8.3 Minutes of the pre-Tender meeting and the pre-arranged pretender site visit of the site of the works, if applicable, including the text of the questions asked by Tenderers and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents in accordance with ITT 6.3. Minutes shall not identify the source of the questions asked.

8.4 The Procuring Entity shall also promptly publish anonymized (*no names*) Minutes of the pre-Tender meeting and the pre-arranged pretender visit of the site of the works at the web page identified in the **TDS**. Any modification to the Tender Documents that may become necessary because of the pre-tender meeting and the pre-arranged pretender site visit, shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT 8 and not through the minutes of the pre-Tender meeting. Nonattendance at the pre-Tender meeting will not be a cause for disqualification of a Tenderer.

9. Clarification and amendments of Tender Documents

9.1 A Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address specified in the **TDS** or raise its enquiries during the pre-Tender meeting and the pre-arranged pretender visit of the site of the works if provided for in accordance with ITT 8.4. The Procuring Entity will respond in writing to any request for clarification, provided that such request is received no later than the period specified in the **TDS** prior to the deadline for submission of tenders. The Procuring Entity shall forward copies of its response to all tenderers who have acquired the Tender Documents in accordance with ITT 6.3, including a description of the inquiry but without identifying its source. If specified in the **TDS**, the Procuring Entity shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Documents, the Procuring Entity shall amend the Tender Documents appropriately following the procedure under ITT 8.4.

10. Amendment of Tendering Document

10.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tendering document by issuing addenda.

10.2 Any addendum issued shall be part of the tendering document and shall be communicated in writing to all who have obtained the tendering document from the Procuring Entity in accordance with ITT 6.3. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's web page in accordance with ITT 8.4.

10.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity shall extend, as necessary, the deadline for submission of Tenders, in accordance with ITT 25.2 below.

C. Preparation of Tenders

11. Cost of Tendering

11.1 The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

12. Language of Tender

12.1 The Tender, as well as all correspondence and documents relating to the tender exchanged by the tenderer and the Procuring Entity, shall be written in the English Language. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate and notarized translation of the relevant passages into the English Language, in which case, for purposes of interpretation of the Tender, such translation shall govern.

13. Documents Comprising the Tender

13.1 The Tender shall comprise the following:

- a) Form of Tender prepared in accordance with ITT 14;
- b) Schedules including priced Bill of Quantities, completed in accordance with ITT 14 and ITT 16;
- c) Tender Security or Tender-Securing Declaration, in accordance with ITT 21.1;
- d) Alternative Tender, if permissible, in accordance with ITT 15;
- e) Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer,

in accordance with ITT 22.3;

- f) Qualifications: documentary evidence in accordance with ITT 19 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;
- g) Conformity: a technical proposal in accordance with ITT 18;
- h) Any other document required in the **TDS**.

13.2 In addition to the requirements under ITT 11.1, Tenders submitted by a JV shall include a copy of the Joint Venture Agreement **entered** by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Tender shall be signed by all members and submitted with the Tender, **together with a copy of the proposed Agreement. The Tenderer shall chronologically serialize pages of all tender documents submitted.**

13.3 The Tenderer shall furnish in the Form of Tender information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Tender.

14. Form of Tender and Schedules

14.1 The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Tendering Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITT 20.3. All blank spaces shall be filled in with the information requested.

15. Alternative Tenders

15.1 Unless otherwise specified in the **TDS**, alternative Tenders shall not be considered.

15.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.

15.3 Except as provided under ITT 13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity's design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, 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 Tenderer with the Winning Tender conforming to the basic technical requirements shall be considered by the Procuring Entity. When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

16. Tender Prices and Discounts

16.1 The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.

16.2 The Tenderer 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 Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price and the equivalent total cost of the Tender so determined will be used for price comparison.

16.3 The price to be quoted in the Form of Tender, in accordance with ITT 14.1, shall be the total price of the Tender, including any discounts offered.

16.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 14.1.

16.5 It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, except in cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.

16.6 Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 16.4, provided the Tenders for all lots (contracts) are opened at the same time.

16.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of Tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer.

17. Currencies of Tender and Payment

17.1 Tenderers shall quote entirely in Kenya Shillings. The unit rates and the prices shall be quoted by the Tenderer in the Bill of Quantities, entirely in Kenya shillings. A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya shall devise own ways of getting foreign currency to meet those expenditures.

18. Documents Comprising the Technical Proposal

18.1 The Tenderer shall furnish a technical proposal including a statement of work methods, equipment, personnel, schedule, and any other information as stipulated in Section IV, Tender Forms, in sufficient detail to demonstrate the adequacy of the Tenderer's proposal to meet the work's requirements and the completion time.

19. Documents Establishing the Eligibility and Qualifications of the Tenderer

19.1 Tenderers shall complete the Form of Tender, included in Section IV, Tender Forms, to establish Tenderer's eligibility in accordance with ITT 4.

19.2 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract the Tenderer shall provide the information requested in the corresponding information sheets included in Section IV, Tender Forms.

19.3 A margin of preference will not be allowed. Preference and reservations will be allowed, individually or in joint ventures. Applying for eligibility for Preference and reservations shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.

19.4 Tenderers shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a contractor or group of contractors qualifies for a margin of preference. Further the information will enable the Procuring Entity to identify any actual or potential conflict of interest in relation to the procurement and/or contract management processes, or a possibility of collusion between tenderers, and thereby help to prevent any corrupt influence in relation to the procurement process or contract management.

19.5 The purpose of the information described in ITT 19.4 above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.

- 19.6 The Tenderer shall provide further documentary proof, information, or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.3. The obligations to require this information shall continue for the duration of the procurement process and contract performance and after completion of the contract, if any change to the information previously provided may reveal a conflict of interest in relation to the award or management of the contract.
- 19.7 All information provided by the tendered pursuant to these requirements must be complete, current, and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these requirements, the Tenderer shall warrant that the information submitted is complete, current, and accurate as at the date of submission to the Procuring Entity.
- 19.8 If a tenderer fails to submit the information required by these requirements, its tender will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tendered pursuant to these requirements, then the tender will be rejected.
- 19.9 If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:
- i) if the procurement process is still ongoing, the tenderer will be disqualified from the procurement process,
 - ii) if the contract has been awarded to that tenderer, the contract award will be set aside,
 - iii) the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other persons have committed any criminal offence.
- 19.10 If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences ITT 6.7 will ensue unless the tenderer can show to the reasonable satisfaction of the Procuring Entity that any such act was not material or was due to genuine error which was not attributable to the intentional act, negligence or recklessness of the tenderer.

20. Period of Validity of Tenders

- 20.1 Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Procuring Entity in accordance with ITT 24). A Tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.
- 20.2 In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the responses shall be made in writing. If a Tender Security is requested in accordance with ITT 21.1, it shall also be extended for thirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting the request shall not be required or permitted to modify its Tender, except as provided in ITT 20.3.
- 20.3 If the award is delayed by a period exceeding the number of days to be specified in the **TDS** days beyond the expiry of the initial tender validity period, the Contract price shall be determined as follows:
- a) in the case of **fixed price** contracts, the Contract price shall be the tender price adjusted by the factor specified in the **TDS**;
 - b) in the case of **adjustable price** contracts, no adjustment shall be made; or in any case, tender evaluation shall be based on the tender price without taking into consideration the applicable correction from those indicated above.

21. Tender Security

- 21.1 The Tenderer shall furnish as part of its Tender, either a Tender-Securing Declaration or a Tender Security as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency specified in the **TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.
- 21.2 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:
- a) an unconditional Bank Guarantee issued by reputable commercial bank); or
 - b) an irrevocable letter of credit;
 - c) a Banker's cheque issued by a reputable commercial bank; or
 - d) another security specified **in the TDS**,
- 21.3 If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing bank shall have a correspondent bank located in Kenya to make it enforceable. The Tender Security shall be valid for thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 20.2.
- 21.4 If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.
- 21.5 If a Tender Security is specified pursuant to ITT 21.1, the Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security and any other documents required in the **TDS**. The Procuring Entity shall also promptly return the tender security to the tenderers where the procurement proceedings are terminated, all tenders were determined nonresponsive, or a bidder declines to extend tender validity period.
- 21.6 The Tender Security of the successful Tenderer shall be returned as promptly as possible once the successful Tenderer has signed the Contract and furnished the required Performance Security, and any other documents required in the **TDS**.
- 21.7 The Tender Security may be forfeited, or the Tender-Securing Declaration executed:
- e) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension thereto provided by the Tenderer; or
 - f) if the successful Tenderer fails to:
 - i) sign the Contract in accordance with ITT 50; or
 - ii) furnish a Performance Security and if required in the **TDS**, and any other documents required in the **TDS**.
- 21.8 Where tender securing declaration is executed, the Procuring Entity shall recommend to the PPRA that PPRA debar the Tenderer from participating in public procurement as provided in the law.
- 21.9 The Tender Security or the Tender-Securing Declaration of a JV shall be in the name of the JV that submits the Tender. If the JV has not been legally constituted into a legally enforceable JV at the time of tendering, the Tender Security or the Tender-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITT 4.1 and ITT 11.2.
- 21.10 A tenderer shall not issue a tender security to guarantee itself.

22. Format and Signing of Tender

- 22.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 13 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 15, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

22.2 Tenderers shall mark as "CONFIDENTIAL" all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.

22.3 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.

22.4 In case the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

22.5 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. Submission and Opening of Tenders

23. Sealing and Marking of Tenders

23.1 Depending on the sizes or quantities or weight of the tender documents, a tenderer may use an envelope, package or container. The Tenderer shall deliver the Tender in a single sealed envelope, or in a single sealed package, or in a single sealed container bearing the name and Reference number of the Tender, addressed to the Procuring Entity and a warning not to open before the time and date for Tender opening date. Within the single envelope, package or container, the Tenderer shall place the following separate, sealed envelopes:

- a) in an envelope or package or container marked "ORIGINAL", all documents comprising the Tender, as described in ITT 11; and
- b) in an envelope or package or container marked "COPIES", all required copies of the Tender; and
- c) if alternative Tenders are permitted in accordance with ITT 15, and if relevant:
 - i) in an envelope or package or container marked "ORIGINAL –ALTERNATIVE TENDER", the alternative Tender; and
 - ii) in the envelope or package or container marked "COPIES- ALTERNATIVE TENDER", all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

- a) bear the name and address of the Procuring Entity.
- b) bear the name and address of the Tenderer; and
- c) bear the name and Reference number of the Tender.

23.2 If an envelope or package or container is not sealed and marked as required, the *Procuring Entity* will assume no responsibility for the misplacement or premature opening of the Tender. Tenders that are misplaced or opened prematurely will not be accepted.

23.3 Electronically submitted tenders shall be emailed to kenyareprocurement@kenyare.co.ke which shall only be accessible during the tender opening session.

24. Deadline for Submission of Tenders

24.1 Tenders must be received by the Procuring Entity at the address specified in the **TDS** and no later than the date and time also specified in the **TDS**. When so specified in the **TDS**, Tenderers shall have the option of submitting their Tenders electronically. Tenderers submitting Tenders electronically shall follow the electronic Tender submission procedures specified in the **TDS**.

24.2 The Procuring Entity may, at its discretion, extend the deadline for the submission of Tenders by amending the Tender Documents in accordance with ITT 8, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline shall thereafter be subject to the deadline as extended.

25. Late Tenders

25.1 The Procuring Entity shall not consider any Tender that arrives after the deadline for submission of tenders, in accordance with ITT 24. Any Tender received by the Procuring Entity after the deadline for submission of Tenders shall be declared late, rejected, and returned unopened to the Tenderer.

26. Withdrawal, Substitution, and Modification of Tenders

26.1 A Tenderer may withdraw, substitute, or modify its Tender 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 ITT 22.3, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Tender must accompany the respective written notice. All notices must be:

- a) prepared and submitted in accordance with ITT 22 and ITT 23 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and
- b) received by the Procuring Entity prior to the deadline prescribed for submission of Tenders, in accordance with ITT 24.

26.2 Tenders requested to be withdrawn in accordance with ITT 26.1 shall be returned unopened to the Tenderers.

26.3 No Tender may be withdrawn, substituted, or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity specified by the Tenderer on the Form of Tender or any extension thereof.

27. Tender Opening

27.1 Except in the cases specified in ITT 23 and ITT 26.2, the Procuring Entity shall publicly open and read out all Tenders received by the deadline, at the date, time, and place specified in the **TDS**, in the presence of Tenderers' designated representatives who chooses to attend. Any specific electronic Tender opening procedures required if electronic Tendering is permitted in accordance with ITT 24.1, shall be as specified in the **TDS**.

27.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelopes with the corresponding Tender shall not be opened but returned to the Tenderer. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Tender opening.

27.3 Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but returned to the Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening.

27.4 Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Tender. No Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening.

27.5 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Tenderer and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required; and any other details as the Procuring Entity may consider appropriate.

27.6 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Form of Tender and pages of the Bills of Quantities are to be initialed by the members of the tender opening committee attending the opening. The number of representatives of the Procuring Entity to sign shall be specified in the **TDS**.

27.7 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 25.1).

27.8 The Procuring **Entity shall prepare minutes of the Tender Opening that shall include, as a minimum:**

- a) the name of the Tenderer and whether there is a withdrawal, substitution, or modification.
- b) the Tender Price, per lot (contract) if applicable, including any discounts.
- c) any alternative Tenders.
- d) the presence or absence of a Tender Security.
- e) number of pages of each tender document submitted.

27.9 The Tenderers' representatives who are present shall be requested to sign the minutes. The omission of a Tenderer's signature on the minutes shall not invalidate the contents and effect of the minutes. A copy of the tender opening register shall be distributed to all Tenderers upon request.

E. Evaluation and Comparison of Tenders

28. Confidentiality

28.1 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 46.

28.2 Any effort by a Tenderer to influence the Procuring Entity in the evaluation of the Tenders or Contract award decisions may result in the rejection of its tender.

28.3 Notwithstanding ITT 28.2, from the time of tender opening to the time of contract award, if a tenderer wishes to contact the Procuring Entity on any **matter related to the tendering process, it shall do so in writing.**

29. Clarification of Tenders

29.1 To assist in the examination, evaluation, and comparison of the tenders, and qualification of the tenderers, the Procuring Entity may, at its discretion, ask any tenderer for a clarification of its tender, given a reasonable time for a response. Any clarification submitted by a tenderer that is not in response to a request by the Procuring Entity shall not be considered. The Procuring Entity'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 tender shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of the tenders, in accordance with ITT 33.

29.2 If a tenderer does not provide clarifications of its tender by the date and time set in the Procuring Entity's request for clarification, its Tender may be rejected.

30. Deviations, Reservations, and Omissions

30.1 During the evaluation of tenders, the following definitions apply:

- a) "Deviation" is a departure from the requirements specified in the tender document;
- b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and
- c) "Omission" is the failure to submit part or all of the information or documentation required in the Tender document.

31. Determination of Responsiveness

31.1 The Procuring Entity's determination of a Tender's responsiveness is to be based on the contents of the tender itself, as defined in ITT 13.

31.2 A substantially responsive Tender is one that meets the requirements of the Tender document without material deviation, **reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would:**

- a) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
- b) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rights or the tenderer's obligations under the proposed contract; or

- c) if rectified, would unfairly affect the competitive position of other tenderers presenting substantially responsive tenders.

31.3 The Procuring Entity shall examine the technical aspects of the tender submitted in accordance with ITT 18, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation, or omission.

31.4 If a tender is not substantially responsive to the requirements of the tender document, it shall be rejected by the Procuring Entity and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

32. Non-material Non-conformities

32.1 Provided that a tender is substantially responsive, the Procuring Entity may waive any non-conformities in the tender.

32.2 Provided that a Tender is substantially responsive, the Procuring Entity may request that the tenderer submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial non-conformities in the tender related to documentation requirements. Requesting information or documentation on such non- conformities shall not be related to any aspect of the price of the tender. Failure of the tenderer to comply with the request may result in the rejection of its tender.

32.3 Provided that a tender is substantially responsive, the Procuring Entity shall rectify quantifiable nonmaterial non-conformities related to the Tender Price. To this effect, the Tender Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified in the **TDS**.

33. Arithmetical Errors

33.1 The tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment, or amendment in any way by any person or entity.

33.2 Provided that the Tender is substantially responsive, the Procuring Entity shall handle errors on the following basis:

- a) Any error detected if considered a major deviation that affects the substance of the tender, shall lead to disqualification of the tender as non-responsive.
- b) Any errors in the submitted tender arising from a miscalculation of unit price, quantity, and subtotal and total bid price shall be considered as a major deviation that affects the substance of the tender and shall lead to disqualification of the tender as non-responsive. and
- c) if there is a discrepancy between words and figures, the amount in words shall prevail

33.3 Tenderers shall be notified of any error detected in their bid during the notification of a ward.

34. Currency provisions

34.1 Tenders will priced be in USDollar only. Tenderers quoting in currencies other than in USDollars will be determined non-responsive and rejected.

35. Margin of Preference and Reservations

35.1 No margin of preference shall be allowed on contracts for small works.

35.2 Where it is intended to reserve the contract to specific groups under Small and Medium Enterprises, or enterprise of women, youth and/or persons living with disability, who are appropriately registered as such by the authority to be specified in the **TDS**, a procuring entity shall ensure that the invitation to tender specifically indicates that only businesses/firms belonging to those specified groups are the only ones eligible to tender. Otherwise if no so stated, the invitation will be open to all tenderers.

36. Nominated Subcontractors

- 36.1 Unless otherwise stated in the **TDS**, the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected in advance by the Procuring Entity.
- 36.2 Tenderers may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified in the **TDS**. Subcontractors proposed by the Tenderer shall be fully qualified for their parts of the Works.
- 36.3 The subcontractor's qualifications shall not be used by the Tenderer to qualify for the Works unless their specialized parts of the Works were previously designated by the Procuring Entity in the **TDS** as can be met by subcontractors referred to hereafter as 'Specialized Subcontractors', in which case, the qualifications of the Specialized Subcontractors proposed by the Tenderer may be added to the qualifications of the Tenderer.

37. Evaluation of Tenders

- 37.1 The Procuring Entity shall use the criteria and methodologies listed in this ITT and Section III, Evaluation and Qualification Criteria. No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies the Procuring Entity shall determine the Best Evaluated Tender in accordance with ITT 40.
- 37.2 To evaluate a Tender, the Procuring Entity shall consider the following:
- a) price adjustment due to discounts offered in accordance with ITT 16;
 - b) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 39;
 - c) price adjustment due to quantifiable non-material non-conformities in accordance with ITT 30.3; and
 - d) any additional evaluation factors specified **in the TDS** and Section III, Evaluation and Qualification Criteria.
- 37.3 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 considered in Tender evaluation.
- 37.4 In the case of multiple contracts or lots, Tenderers shall be allowed to tender for one or more lots and the methodology to determine the lowest evaluated cost of the lot (contract) combinations, including any discounts offered in the **Form of Tender, is specified in Section III, Evaluation and Qualification Criteria**.

38. Comparison of Tenders

- 38.1 The Procuring Entity shall compare the evaluated costs of all substantially responsive Tenders established in accordance with ITT 38.2 to determine the Tender that has the lowest evaluated cost.

39. Abnormally Low Tenders

- 39.1 An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer regarding the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.
- 39.2 In the event of identification of a potentially Abnormally Low Tender, the Procuring Entity shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender document.
- 39.3 After evaluation of the price analyses, if the Procuring Entity determines that the Tenderer has failed to demonstrate its capability to perform the Contract for the offered Tender Price, the Procuring Entity shall reject the Tender.

40. Abnormally High Tenders

40.1 An abnormally high price is one where the tender price, in combination with other constituent elements of the Tender, appears unreasonably too high to the extent that the Procuring Entity is concerned that it (the Procuring Entity) may not be getting value for money, or it may be paying too high a price for the contract compared with market prices or that genuine competition between Tenderers is compromised.

40.2 In case of an abnormally high tender price, the Procuring Entity shall make a survey of the market prices, check if the estimated cost of the contract is correct and review the Tender Documents to check if the specifications, scope of work and conditions of contract are contributory to the abnormally high tenders. The Procuring Entity may also seek written clarification from the tenderer on the reason for the high tender price. The Procuring Entity shall proceed as follows:

- i) If the tender price is abnormally high based on wrong estimated cost of the contract, the Procuring Entity may accept or not accept the tender depending on the Procuring Entity's budget considerations.
- ii) If specifications, scope of work and/or conditions of contract are contributory to the abnormally high tender prices, the Procuring Entity shall reject all tenders and may retender for the contract based on revised estimates, specifications, scope of work and conditions of contract, as the case may be.

40.3 If the Procuring Entity determines that the Tender Price is abnormally too high because genuine competition between tenderers is compromised (*often due to collusion, corruption, or other manipulations*), the Procuring Entity shall reject all Tenders and shall institute or cause competent Government Agencies to institute an investigation on the cause of the compromise, before retendering.

41. Unbalanced and/or Front-Loaded Tenders

41.1 If in the Procuring Entity's opinion, the Tender that is evaluated as the lowest evaluated price is seriously unbalanced and/or front loaded, the Procuring Entity may require the Tenderer to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the tender prices with the scope of works, proposed methodology, schedule and any other requirements of the Tender document.

41.2 After the evaluation of the information and detailed price analyses presented by the Tenderer, the Procuring Entity may as appropriate:

- a) accept the Tender; or
- b) require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding a 30% of the Contract Price; or
- c) agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works; or
- d) reject the Tender,

42. Qualifications of the Tenderer

42.1 The Procuring Entity shall determine to its satisfaction whether the eligible Tenderer that is selected as having submitted the lowest evaluated cost and substantially responsive Tender, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

42.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 19. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.

42.3 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in disqualification of the Tender, in which event the Procuring Entity shall proceed to the Tenderer who offers a substantially responsive Tender with the next lowest evaluated price to make a similar determination of that Tenderer's qualifications to perform satisfactorily.

42.4 An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer regarding the Tenderer's ability to perform the Contract for the offered Tender Price.

42.5 In the event of identification of a potentially Abnormally Low Tender, the Procuring Entity shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender document.

42.6 After evaluation of the price analyses, if the Procuring Entity determines that the Tenderer has failed to demonstrate its capability to perform the Contract for the offered Tender Price, the Procuring Entity shall reject the Tender.

43. Best Evaluated Tender

43.1 Having compared the evaluated prices of Tenders, the Procuring Entity shall determine the Best Evaluated Tender. The Best Evaluated Tender is the Tender of the Tenderer that meets the Qualification Criteria and whose Tender has been determined to be:

- a) Most responsive to the Tender document; and
- b) the lowest evaluated price.

44. Procuring Entity's Right to Accept Any Tender, and to Reject Any or All Tenders.

44.1 The Procuring Entity reserves the right to accept or reject any Tender and to annul the Tender process and reject all Tenders at any time prior to Contract Award, without thereby incurring any liability to Tenderers. In case of annulment, all Tenderers shall be notified with reasons and all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. Award of Contract

45. Award Criteria

45.1 The Procuring Entity shall award the Contract to the successful tenderer whose tender has been determined to be the Lowest Evaluated Tender.

46. Notice of Intention to enter a Contract

46.1 Upon award of the contract and prior to the expiry of the Tender Validity Period the Procuring Entity shall issue a Notification of Intention to Enter into a Contract / Notification of award to all tenderers which shall contain, at a minimum, the following information:

- a) the name and address of the Tenderer submitting the successful tender;
- b) the Contract price of the successful tender;
- c) a statement of the reason(s) the tender of the unsuccessful tenderer to whom the letter is addressed was unsuccessful, unless the price information in (c) above already reveals the reason;
- d) the expiry date of the Standstill Period; and
- e) instructions on how to request a debriefing and/or submit a complaint during the standstill period;

47. Standstill Period

47.1 The Contract shall not be signed earlier than the expiry of a Standstill Period of 14 days to allow any dissatisfied tender to launch a complaint. Where only one Tender is submitted, the Standstill Period shall not apply.

47.2 Where a Standstill Period applies, it shall commence when the Procuring Entity has transmitted to each Tenderer the Notification of Intention to Enter **into a Contract with the successful Tenderer.**

48. Debriefing by the Procuring Entity

- 48.1 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 46, an unsuccessful tenderer may make a written request to the Procuring Entity for a debriefing on specific issues or concerns regarding their tender. The Procuring Entity shall provide the debriefing within five days of receipt of the request.
- 48.2 Debriefings of unsuccessful Tenderers may be done in writing or verbally. The Tenderer shall bear its own costs of attending **such a debriefing meeting**.

49. Letter of Award

- 49.1 Prior to the expiry of the Tender Validity Period and upon expiry of the Standstill Period specified in ITT 42.1, upon addressing a complaint that has been filed within the Standstill Period, the Procuring Entity shall transmit the Letter of Award to the successful Tenderer. The letter of award shall request the successful tenderer to furnish the Performance Security within 21 days of the date of the letter.

50. Signing of Contract

- 50.1 Upon the expiry of the fourteen days of the Notification of Intention to enter into contract and upon the parties meeting their respective statutory requirements, the Procuring Entity shall send the successful Tenderer the Contract Agreement.
- 50.2 Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign, date, and return it to the Procuring Entity.
- 50.3 The written contract shall be entered into within the period specified in the notification of award and before expiry of the tender validity period

51. Appointment of Adjudicator

- 51.1 The Procuring Entity proposes the person named in the **TDS** to be appointed as Adjudicator under the Contract, at the hourly fee specified in the **TDS**, plus reimbursable expenses. If the Tenderer disagrees with this proposal, the Tenderer should so state in his Tender. If, in the Letter of Acceptance, the Procuring Entity does not agree on the appointment of the Adjudicator, the Procuring Entity will request the Appointing Authority designated in the Special Conditions of Contract (SCC) pursuant to Clause 23.1 of the General Conditions of Contract (GCC), to appoint the Adjudicator.

52. Performance Security

- 52.1 Within twenty-one (21) days of the receipt of the Letter of Acceptance from the Procuring Entity, the successful Tenderer shall furnish the Performance Security and, any other documents required in the **TDS**, in accordance with the General Conditions of Contract, subject to ITT 40.2 (b), using the Performance Security and other Forms included in Section X, Contract Forms, or another form acceptable to the Procuring Entity. A foreign institution providing a bank guarantee shall have a correspondent financial institution located in Kenya, unless the Procuring Entity has agreed in writing that a correspondent bank is not required.
- 52.2 Failure of the successful Tenderer to submit the above-mentioned Performance Security and other documents required in the **TDS**, or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the Tenderer offering the next Best Evaluated Tender.
- 52.3 Performance security shall not be required for contracts estimated to cost less than United States Dollars Fifty Thousand.

53. Publication of Procurement Contract

53.1 Within fourteen days after signing the contract, the Procuring Entity shall publish the awarded contract at its notice boards and websites; and on the Website of the Authority. At the minimum, the notice shall contain the following information:

- a) name and address of the Procuring Entity;
- b) name and reference number of the contract being awarded, a summary of its scope and the selection method used;
- c) the name of the successful Tenderer, the final total contract price, the contract duration.
- d) dates of signature, commencement and completion of contract;
- e) names of all Tenderers that submitted Tenders, and their Tender prices as read out at Tender opening.

54. Procurement Related Complaints and Administrative Review

54.1 The procedures for making Procurement-related Complaints are as specified in the **TDS**.

54.2 A request for administrative review shall be made in the form provided under contract forms.

Section II - Tender Data Sheet (TDS)

The following specific data shall complement, supplement, or amend the provisions in the Instructions to Tenderers (ITT). Whenever there is a conflict, the provisions herein shall prevail over those in ITT.

ITT Reference	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	A. General
ITT 1.1	<p>The name of the contract is <i>Proposed Fitout of Kenya Reinsurance Corporation Uganda - SMC Ltd Offices on First Floor Level, Redstone House, Plot 07 Bandali Rise, Kampala, Uganda</i></p> <p>The reference number of the Contract is KRC/1670/2021/099</p> <p>The number and identification of lots (contracts) comprising this Tender are</p> <p>Lot 1- Name N/A</p> <p>Lot 2- Name N/A</p> <p>Lot... Name N/A</p>
ITT 2.3	The Information made available on competing firms is as follows:
ITT 2.4	<p>The firms that provided consulting services for the contract being tendered for are:</p> <p><u>M/s Symbion Uganda Limited</u></p>
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be: (2) Two Number.
B. Contents of Tender Document	
8.1	<p>(A) Pre-Tender conference shall not take place at the following date, time and place: Date: N/A Time: N/A Place: N/A</p> <p>(B) A pre-arranged visit of the site of the works shall take place at the following date, time and place: Date: 23rd August 2021 Time: 11:00 a.m. Place: Kenya Re – Uganda office on 1st floor – Redstone House Bugolobi</p>
ITT 8.2	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than (7) Seven Days before closing date of bids
ITT 8.4	The Procuring Entity's website where Minutes of the pre-Tender meeting and the pre-arranged pretender site visit will be published is www.kenyare.co.ke
ITT 9.1	<p>For Clarification of Tender purposes, for obtaining further information, the Procuring Entity's address is:</p> <p style="text-align: center;">Kenya Reinsurance Corporation Ltd, Email: procurement@kenyare.co.ke Tel: +254703 083 200.</p>

ITT Reference	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
C. Preparation of Tenders	
ITP 13.1 (h)	The Tenderer shall submit the following additional documents in its Tender: <ol style="list-style-type: none"> 1. Copy of Firm Registration Certificate 2. Certified copy of valid tax compliance certificate 3. Current business license 4. Evidence of physical location of office by providing certified copies of premises ownership/lease and utility bills 5. Latest shareholding document showing the list of directors
ITT 15.1	Alternative Tenders shall not be considered.
ITT 15.2	Alternative times for completion shall not be permitted.
ITT 15.4	Alternative technical solutions shall be permitted for the following parts of the Works: N/A
ITT 16.5	The prices quoted by the Tenderer shall be: FIXED
ITT 20.1	The Tender validity period shall be 120 days from date of bid submission
ITT 20.3 (a)	(a) The delayed to exceeding number of days. N/A (b) The Tender price shall be adjusted by the following percentages of the tender price: (i) By 0% of the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension, and (ii) By 0% the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension.
ITT 21.1	A Tender Security shall be required. A Tender-Securing Declaration shall NOT be required. Tender Security required United States Dollars 3000.00
ITT 21.2 (d)	The other Tender Security shall be N/A
ITT 21.5	A Performance Security, of 10% of the contract sum shall be required of the winning bidder.
ITT 22.1	In addition to the original of the Tender, the number of copies is: (1) One Number
ITT 22.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: The Power of attorney
D. Submission and Opening of Tenders	
ITT 24.1	(A) For <u>Tender submission purposes</u> only, the Procuring Entity's address is: Kenya Reinsurance Corporation Ltd P.O Box 30271-00100, Nairobi, Email: procurement@kenyare.co.ke, Tel: +254 703 083 200. Nairobi City, Taifa Road, Reinsurance Plaza, 14th Floor, Supply Chain Office Tenders to be submitted before 14th September 2021 at 1000 hours Tenders shall be submitted electronically to kenyareprocurement@kenyare.co.ke
ITT 27.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below:

ITT Reference	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	<p>Kenya Reinsurance Corporation Ltd Nairobi City, Taifa Road, Reinsurance Plaza, 14th Floor, Supply Chain Office Tenders to be opened on 14th September 2021 at 1000 hours</p>
ITT 27.1	<p>If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures specified below:</p> <p>Email kenyareprocurement@kenyare.co.ke</p>
ITT 27.6	<p>The number of representatives of the Procuring Entity to sign is a minimum of three (3) No. staff.</p>
E. Evaluation, and Comparison of Tenders	
ITT 32.3	<p>The adjustment shall be based on the average price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive Tenders, the Procuring Entity shall use its best estimate.</p>
ITT 35.2	<p>The invitation to tender is OPEN TO ALL BIDDERS.</p>
ITT 36.1	<p>At this time, the Procuring Entity does not intend to execute certain specific parts of the Works by subcontractors selected in advance.</p>
ITT 36.2	<p>Contractor's may propose subcontracting: Maximum percentage of subcontracting permitted is: 60% of the total contract amount. Tenderers planning to subcontract more than 60% of total volume of work shall specify, in the Form of Tender, the activity (ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience.</p>
ITT 36.3	<p>The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: Mechanical, Electrical & ICT Works.</p> <p>For the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation.</p>
ITT 37.2 (d)	<p>Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.</p>
ITT 52.2	<p>Other documents required are N/A</p>
ITT 54.1	<p>The procedures for making a Procurement-related Complaints are detailed in the "Regulations" available from the PPRA Website www.ppra.go.ke or email complaints@ppra.go.ke. If a Tenderer wishes to make a Procurement-related Complaint, the Tenderer should submit its complaint following these procedures, in writing (by the quickest means available, that is either by hand delivery or email to:</p> <p>Managing Director Kenya Reinsurance Corporation Ltd Email: kenyare@kenyare.co.ke</p> <p>In summary, a Procurement-related Complaint may challenge any of the following:</p> <p>(i) the terms of the Tender Documents; and</p> <p>(ii) the Procuring Entity's decision to award the contract.</p>

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

1. General Provisions

Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate the Kenya Shilling equivalent using the rate of exchange determined as follows:

- a) 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 amount for that year is to be converted) was originally established.
- b) Value of single contract - Exchange rate prevailing on the date of the contract signature.
- c) Exchange rates shall be taken from the publicly available source identified in the ITT 14.3. Any error in determining the exchange rates in the Tender may be corrected by the Procuring Entity.

This section contains the criteria that the Employer shall use to evaluate tender and qualify tenderers. No other factors, methods or criteria shall be used other than specified in this tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tendering Forms. The Procuring Entity should use **the Standard Tender Evaluation Document for Goods and Works** for evaluating Tenders.

Evaluation and contract award Criteria

The Procuring Entity shall use the criteria and methodologies listed in this Section to evaluate tenders and arrive at the Lowest Evaluated Tender. The tender that (i) meets the qualification criteria, (ii) has been determined to be substantially responsive to the Tender Documents, and (iii) is determined to have the Lowest Evaluated Tender price shall be selected for award of contract.

2. Preliminary examination for Determination of Responsiveness

The Procuring Entity will start by examining all tenders to ensure they meet in all respects the eligibility criteria and other requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements of "Part 2 – Procuring Entity's Works Requirements", including checking for tenders with unacceptable errors, abnormally low tenders, abnormally high tenders, and tenders that are front loaded. The Standard Tender Evaluation Report Document for Goods and Works for evaluating Tenders provides very clear guide on how to deal with review of these requirements. Tenders that do not pass the Preliminary Examination will be considered irresponsive and will not be considered further.

[The Procuring Entity will provide the preliminary evaluation criteria. To facilitate, a template may be attached or clearly described all information and list of documentation to be submitted by Tenderers to enable preliminary evaluation of the Tender]

3. Tender Evaluation (ITT 35) Price evaluation: in addition to the criteria listed in ITT 35.2 (a) – (c) the following

criteria shall apply:

- i) **Alternative Completion Times**, if permitted under ITT 13.2, will be evaluated as follows: **N/A**
- ii) **Alternative Technical Solutions** for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows: **N/A**
- iii) **Other Criteria**, if permitted under ITT 35.2(d):

4. Multiple Contracts

Multiple contracts **will NOT be** permitted in accordance with ITT 35.4. Tenderers are evaluated on basis of Lots and the lowest evaluated tenderer identified for each Lot. The Procuring Entity will select one Option of the two Options listed below for award of Contracts.

OPTION 1

- i) If a tenderer wins only one Lot, the tenderer will be awarded a contract for that Lot, provided the tenderer meets the Eligibility and Qualification Criteria for that Lot.

- ii) If a tenderer wins more than one Lot, the tender will be awarded contracts for all won Lots, provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the Lots. The tenderer will be awarded the combination of Lots for which the tenderer qualifies and the others will be considered for award to second lowest the tenderers.

OPTION 2

The Procuring Entity will consider all possible combinations of won Lots [contract(s)] and determine the combinations with the lowest evaluated price. Tenders will then be awarded to the Tenderer or Tenderers in the combinations provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the won lots.

5. Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 13.1, will be evaluated as follows:

The Procuring Entity **shall NOT consider** Tenders offered for alternatives as specified in Part 2- Works Requirements. Only the technical alternatives, if any, of the Tenderer with the Best Evaluated Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.

6. Margin of Preference is not applicable

7. Post qualification and Contract award (ITT 39), more specifically,

- a) In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.
- b) In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.
 - i) The Tenderer 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 cashflow of **USD 50,000.00**
 - ii) **Minimum average annual construction turnover of USD 500,000.00** equivalent calculated as total certified payments received for contracts **in progress and/or completed** within the **last 7 years**.
 - iii) At least **three (3No.) contract(s)** of a similar nature executed within Kenya, or the East African Community or abroad, that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor each of minimum value **USD 200,000.00** equivalent.
 - iv) Contractor's Representative and Key Personnel, which are specified as **N/A**
 - v) Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed as *[specify requirements for each lot as applicable]* **N/A**
 - vi) Other conditions depending on their seriousness.
 - a) **History of non-performing contracts:**
Tenderer and each member of JV in case the Tenderer is a JV, shall demonstrate that non-performance of a contract did not occur because of the default of the Tenderer, or the member of a JV in the last **7 years**. The required information shall be furnished in the appropriate form.
 - b) **Pending Litigation**
Financial position and prospective long-term profitability of the Single Tenderer, and in the case the Tenderer is a JV, of each member of the JV, shall remain sound according to criteria established with respect to Financial Capability under Paragraph (i) above if all pending

litigation will be resolved against the Tenderer. Tenderer shall provide information on pending litigations in the appropriate form.

c) Litigation History

There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the **last 7 years**. All parties to the contract shall furnish the information in the appropriate form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the years specified. A consistent history of awards against the Tenderer or any member of a JV may result in rejection of the tender.

EVALUATION CRITERIA

The evaluation will be based on two levels, viz:

- i. Determination of responsiveness.
- ii. Establishment of the lowest evaluated tender.

PRELIMINARY EVALUATION FOR DETERMINATION OF RESPONSIVENESS

The tenderer shall provide the requested information to demonstrate clearly that it meets the requirements to determine substantive responsiveness. At this level, the determination is either a pass or fail.

Only firms that are Responsive in all aspects are considered for evaluation of Technical Proposals.

S/N	Mandatory Documents Required for Preliminary Evaluation	Responsive	Non Responsive										
1	Duly completed and signed Form of Tender prepared in accordance with ITT 14.												
2	Duly completed and signed Tenderer’s Eligibility – Confidential Business Questionnaire prepared in accordance with ITT 14.												
3	Duly completed and signed Certificate of Independent Tender Determination prepared in accordance with ITT 14.												
4	Duly completed and signed Tenderer Self-Declaration prepared in accordance with ITT 14.												
5	Priced Bills of Quantities, completed in accordance with ITT 14 AND ITT 16												
6	Provision of Bid Security of USD 3,000 from a reputable Bank in the Republic of Uganda or Kenya												
7	Written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 22.3												
8	Complete, current and accurate (as at date of submission) details of ownership/ shareholding of the bidding entity.												
9	Valid tax compliance certificate. In case of a joint Venture, all parties must submit.												
10	Firm’s Business Registration Incorporation Certificate in accordance to TDS. In case of a joint Venture, all parties must submit their registration certificates. a) In case of a joint venture: the JV must provide a duly signed & executed joint venture agreement witnessed by a commissioner of oaths. b) In case of a joint venture: the JV must indicate the Power of Attorney of the signatory of the tender to commit the tenderer and in a joint venture a party to the joint venture should be nominated to commit on behalf of the whole team.												
12	Duly completed manufacturer’s authorization for the proposed equipment. If the equipment is from different suppliers, list all the equipment in a table and attach (Manufacturer’s Authorization Form) MAF for each proposed equipment. Also outline the country of origin of the proposed equipment. Format of table e.g. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>NO</th> <th>EQUIPMENT</th> <th>SOURCE</th> <th>Country of Origin</th> <th>MAF</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Uninterruptible Power Supply (UPS)</td> <td>Toshiba</td> <td>Japan</td> <td>Attach MAF of supplier</td> </tr> </tbody> </table>	NO	EQUIPMENT	SOURCE	Country of Origin	MAF	1	Uninterruptible Power Supply (UPS)	Toshiba	Japan	Attach MAF of supplier		
NO	EQUIPMENT	SOURCE	Country of Origin	MAF									
1	Uninterruptible Power Supply (UPS)	Toshiba	Japan	Attach MAF of supplier									
13	Complete audited financial statements for the period of 2019 and 2020 financial years. In case of a joint Venture, only the lead contractor/ Power of Attorney shall submit.												
14	Proof of Site Visit (duly signed Site Visit Form by the client representative as stated on Page 68 of Vol. 1 of the tender document).												
16	Evidence of physical location of office by providing certified copies of premises ownership or lease or utility bill												
FINAL DETERMINATION (Responsive/Not Responsive)													

TECHNICAL EVALUATION CRITERIA

PART B

Item	Description	MAX POINTS	SCORED POINTS
1	Key Personnel		
A	Director of the firm Holder of college diploma or higher (Attach copy of certificate) 0marks if no certificate is attached. 5marks if certificate is attached.	5	
B	At least 1No. Project Manager in any construction related filed. With over 3 years’ relevant experience (Attach CV and copy of education certificate) 0marks if no certificate is attached & if experience as per CV in not RELEVANT. 5marks if certificate is attached but RELEVANT experience is less than 3years. 10marks if certificate is attached & RELEVANT experience is 3 years & above.	10	
2	Contracts successfully completed in the last six (6) years. (Max of 3 No. Projects of at least works value of USD 50,000.00) Bidder must provide either/or : A 1. Completion certificates - based on the projects attached. B 2. Reference letter (on client’s letter head) within the last 6 years – based on the projects attached. C 3. Recommendation letter (on client’s letter head) within the last 6 years - based on the projects attached. 0marks per project if no evidence of either 1/2/3 is attached. 0marks per project if project attached is below USD 50,000.00. 5marks per project if project attached is above USD 50,000 but below USD 100,000.00. 10marks per project if project attached is USD 100,000.00 and above.	30	
3	Evidence of Financial Resources a minimum of USD 50,000.00 Bidder must provide either/or: A 1. Cash in hand B 2. Letter from the bank indicating credit line. C 3. Overdraft facility as indicated by a bank letter. D 4. Most recent 3 months bank statement indicating cash flow equivalent to USD 50,000.00 per month. 0marks if no evidence of either 1/2/3/4 is attached. 0marks if financial resources attached are below USD 50,000.00. 7.5 marks - if financial resources attached are USD 50,000.00 but below USD 100,000.00. 15marks - if financial resources attached are USD 100,000 and above.	15	

PASS PROCEED TO DUE DILIGENCE EVALUATION CRITERIA **if the score is 40/ 60 and above.**

FINANCIAL EVALUATION

The lowest technical score to qualify for financial evaluation post due diligence shall be 40/60.

Financial evaluation shall be in accordance to **ITT 33, ITT39, ITT40, and ITT41.**

Criteria	Responsive	Non-responsive
1. Deviation from official cost estimates $\leq +$ or $-$ 15% in accordance with ITT 39 and ITT 40		
2. Significance of Error in accordance with ITT 33		
3. Tender Balanced (no front-loading or inconsistencies) in accordance with ITT 41		

The most responsive bidder shall be the lowest financial proposal after passing the technical evaluation criteria.

DUE DILIGENCE EVALUATION CRITERIA – POST AWARD RECOMMENDATION BY THE EVALUATORS

Each bidder will be requested to arrange for **AT LEAST 3No.** evaluators **from Kenya Re** to visit any of the **3 No. Sites (as proposed in the technical documents above)** which has been completed and handed over in the **past seven (7) years of works value USD 50,000.00 and above.** The due diligence shall be to confirm the information provided in the mandatory and technical evaluation are a true representation of the bidding firm(s) technical and financial proposal.

NB:

The cost of due diligence shall be borne by the contractor for a minimum of 3No. Kenya Re staff to be priced in the BoQ.

Due Diligence shall only be done on the most responsive bidder and shall only be conducted on the subsequent bidder should the most responsive bidder fail the due diligence.

Should a bidder FAIL in the due diligence the costs incurred therefrom are NOT reimbursable by the Corporation.

8. QUALIFICATION FORM SUMMARY

1 Item No.	2 Qualification Subject	3 Qualification Requirement	4 Document To be Completed by Tenderer	5 For Procuring Entity's Use (Qualification met or Not Met)
1	Nationality	Nationality in accordance with ITT 3.6	Forms ELI – 1.1 and 1.2, with attachments	
2	Tax Obligations	Has produced a current tax clearance certificate or tax exemption certificate issued by the relevant Revenue Authority in accordance with ITT 3.14.	Form of Tender	
3	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	Form of Tender	
4	PPRA Eligibility	Not having been declared ineligible by the Public Procurement Regulatory Authority as described in ITT 3.7	Form of Tender	
5	State- owned Enterprise	Meets conditions of ITT 3.8	Forms ELI – 1.1 and 1.2, with attachments	
6	Goods, equipment and services to be supplied under the contract	To have their origin in any country that is not determined ineligible under ITT 4.1	Forms ELI – 1.1 and 1.2, with attachments	
7	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1st January 2014.	Form CON-2	
8	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	Not under suspension based on-execution of a Tender/Proposal Securing Declaration pursuant to ITT 19.9	Form of Tender	
9	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the Tenderer.	Form CON – 2	
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1st January 2014	Form CON – 2	
11	Financial Capabilities	a) The Tenderer 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 US Dollars One Hundred Thousand equivalent for the subject contract(s) net of the Tenderer's other commitments. (ii) The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.	Form FIN – 3.1, with attachments	

1 Item No.	2 Qualification Subject	3 Qualification Requirement	4 Document To be Completed by Tenderer	5 For Procuring Entity's Use (Qualification met or Not Met)
		(iii) The audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last (2) two years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability.		
12	Average Annual Construction Turnover	Minimum average annual construction turnover of US Dollars Five Hundred Thousand , equivalent calculated as total certified payments received for contracts in progress and/or completed within the last (7) seven years.	Form FIN – 3.2	
13	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last (7) seven years, starting 1st January 2014 .	4. Form EXP – 4.1 Experience	
	Specific Construction & Contract Management Experience	<p>A minimum number of (2) Two similar contracts specified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between 1st January 2014 and tender submission deadline i.e. (2) Two (number) contracts, each of minimum value USD Fifty Thousand equivalent.</p> <p><i>[In case the Works are to be tender as individual contracts under multiple contract procedure, the minimum number of contracts required for purposes of evaluating qualification shall be selected from the options mentioned in ITT 35.4]</i></p> <p>The similarity of the contracts shall be based on the following: <i>[Based on Section VII, Scope of Works, specify the minimum key requirements in terms of physical size, complexity, construction method, technology and/or other characteristics including part of the requirements that may be met by specialized subcontractors, if permitted in accordance with ITT 34.3]</i></p>	Form EXP 4.2(a)	

QUALIFICATION FORMS

1. FORMEQU: EQUIPMENT

The Tenderer 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 Tenderer.

Item 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 <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Tenderer.

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	

2. FORMPER-1

Contractor's Representative and Key Personnel Schedule

Tenderers should provide the names and details of the suitably qualified Contractor's Representative and Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Contractor' Representative and Key Personnel

1.	Title of position: Contractor's Representative	
	Name of candidate:	
	Duration of appointment:	
	Time commitment: for this position:	
	Expected time schedule for this position:	
2.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	
	Time commitment: for this position:	
	Expected time schedule for this position:	
3.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	
	Time commitment: for this position:	
	Expected time schedule for this position:	
4.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	
	Time commitment: for this position:	
	Expected time schedule for this position:	
5.	Title of position: <i>[insert title]</i>	
	Name of candidate	
	Duration of appointment:	
	Time commitment: for this position:	
	Expected time schedule for this position:	

3. **FORM PER-2:**

Resume and Declaration - Contractor's Representative and Key Personnel.

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

Name of Tenderer

Position [# 1]: <i>[title of position from Form PER-1]</i>	
Personnel information	Name: _____ Date of birth: _____
	Address: _____ E-mail: _____
	Professional qualifications: _____
	Academic qualifications: _____
	Language proficiency: <i>[language and levels of speaking, reading, and writing skills]</i>
Details	Address of Procuring Entity: _____
	Telephone: _____ Contact (manager / personnel officer): _____
	Fax: _____
	Job title: _____ Years with present Procuring Entity: _____

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

Project	Role	Duration of involvement	Relevant experience
<i>[main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

Declaration

I, the undersigned _____, certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Tender:

Commitment	Details
Commitment to duration of contract:	
Time commitment:	

I understand that any misrepresentation or omission in this Form may:

- a) be taken into consideration during Tender evaluation;
- b) result in my disqualification from participating in the Tender;
- c) result in my dismissal from the contract.

Name of Contractor's Representative or Key Personnel: [*insert name*]

Signature: _____

Date: (day month year): _____ Countersignature

of authorized representative of the Tenderer:

Signature: _____ Date: (day month

year): _____

4. TENDERER'S QUALIFICATION WITHOUT PRE-QUALIFICATION

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

4.1 FORM ELI -1.1

Tenderer Information Form

Date:

ITT No. and title:

Tenderer's name:
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration:
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of a) Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITT 3.6 b) In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 c) In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: i. Legal and financial autonomy ii. Operation under commercial law iii. Establishing that the Tenderer is not under the supervision of the Procuring Entity
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

4.2 FORM ELI -1.2

Tenderer's JV Information Form (to be completed for each member of Tenderer's JV)

Date:

ITT No. and title:

Tenderer's JV 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 <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITT 3.6. <input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 3.8. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

4.3 FORM CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer’s Name:

Date:

JV Member’s Name:

ITT No. and title:

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> Contract non-performance did not occur since _____ specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since _____ specified in Section III, Evaluation and Qualification Criteria, requirement 2.1			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and Kenya Shilling equivalent)
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Reason(s) for nonperformance:	
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.			

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:	
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4.			
<input type="checkbox"/> Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below.			

Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Reason(s) for Litigation and award decision	

4.4 FORM FIN – 3.1:

Financial Situation and Performance

Tenderer's Name:

Date:

JV Member's Name

ITT No. and title:

4.4.1. Financial Data

Type of Financial information in USD	Historic information for previous _____ years, (amount in currency, currency, exchange rate*, USD equivalent)				
	Year 1	Year 2	Year 3	Year 4	Year 5
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					

*Refer to ITT 15 for the exchange rate

4.4.2 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 (Kenya Shilling equivalent)
1		
2		
3		

4.4.3 Financial documents

The Tenderer and its parties shall provide copies of financial statements for _____ years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

- (a) reflect the financial situation of the Tenderer 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 statements¹ for the _____ years required above; and complying with the requirements

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Tender, the reason for this should be justified.

4.5 FORM FIN – 3.2:

Average Annual Construction Turnover

Tenderer's Name:

Date:

JV Member's Name

ITT No. and title:

		Annual turnover data (construction only)		
Year	Amount Currency	Exchange rate	Kenya equivalent	Shilling
Average Annual Construction Turnover *				

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

4.6 FORM FIN – 3.3:

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

Financial Resources			
No.	Source of financing	Amount	(Kenya Shilling equivalent)
1			
2			
3			

4.7 FORM FIN – 3.4:

Current Contract Commitments / Works in Progress

Tenderers and each member 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.

Current Contract Commitments

	Name of Contract	Procuring Entity's Contact Address, Tel,	Value of Outstanding Work [Current Kenya Shilling /month Equivalent]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Kenya /month]	Monthly Shilling
1						
2						
3						
4						
5						

4.8 FORM EXP - 4.1

General Construction Experience

Tenderer's Name:

Date:

JV Member's Name:

ITT No. and title:

Page _____ of _____ pages

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	

4.9 FORM EXP - 4.2 (a)**Specific Construction and Contract Management Experience**

Tenderer's Name:

Date:

JV Member's Name

ITT No. and title:

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
Total Contract Amount				Kenya Shilling
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address:				
Telephone/fax number				
E-mail:				

4.10 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	

4.11 FORM EXP - 4.2(b)

Construction Experience in Key Activities

Tenderer's Name:

Date:

Tenderer's JV Member Name:

Sub-contractor's Name² (as per ITT 34):

ITT No. and title: _____

All Sub-contractors for key activities must complete the information in this form as per ITT 34 and Section III, Evaluation and Qualification Criteria, Sub-Factor 4.2.

1. Key Activity:

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member JV <input type="checkbox"/>	in Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
Total Contract Amount			Kenya Shilling	
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)
Year 1				
Year 2				
Year 3				
Year 4				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				

² If applicable

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

2. Activity No. Two

3.

OTHER FORMS

5. FORM OF TENDER

INSTRUCTIONS TO TENDERERS

- i) The Tenderer must prepare this Form of Tender on stationery **with its letterhead** clearly showing the Tenderer's complete name and business address.*
- ii) All italicized text is to help Tenderer in preparing this form.*
- iii) Tenderer must **complete and sign** CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION OF THE TENDERER attached to this Form of Tender.*
- iv) The Form of Tender shall include the following Forms duly completed and signed by the Tenderer.*
 - Tenderer's Eligibility- Confidential Business Questionnaire*
 - Certificate of Independent Tender Determination*
 - Self-Declaration of the Tenderer*

Date of this Tenders submission: *[insert date (as day, month, and year) of Tenders submission]*

Request for Tender No.: *[insert identification]*

Name and description of Tender *[Insert as per ITT]*

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

To: *[insert complete name of Procuring Entity]*

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above-named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum of United States Dollars _____
*[amount in words]*_____.

The percentage or amount quoted above includes provisional sums, and only allows not more than two foreign currencies.

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Project Manager's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
3. We agree to adhere by this tender until _____ *[Insert date]*, and it shall remain binding upon us and may be accepted at any time before that date.
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us. We further understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the undersigned, further declare that:
 - i) No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;*
 - ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;*
 - iii) Tender-Securing Declaration: We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;*
 - iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works];**

- v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
- vi) Option 1, in case of one lot: Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; Or
- Option 2, in case of multiple lots:
- a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and
- b) 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]*;
- vii) Discounts: The discounts offered and the methodology for their application are:
- viii) The discounts offered are: *[Specify in detail each discount offered.]*
- ix) 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]*;
- x) Tender Validity Period: Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- xi) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xii) One Tender Per Tender: We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a subcontractor, and meet the requirements of ITT 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- xiii) Suspension and Debarment: We, along with any of our subcontractors, suppliers, Project Manager, 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 the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.
- xiv) State-owned enterprise or institution: *[select the appropriate option and delete the other]* *[We are not a state-owned enterprise or institution]* / *[We are a state-owned enterprise or institution but meet the requirements of ITT 3.8]*;
- xv) Commissions, gratuities, fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender 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.")

- xvi) Binding Contract: We understand that this Tender, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xvii) Not Bound to Accept: We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;
- xviii) Fraud and Corruption: We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption;

- xix) Collusive practices: We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the "Certificate of Independent Tender Determination" attached below.
- xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from www.ppra.go.ke during the procurement process and the execution of any resulting contract.
- xxi) We, the Tenderer, have completed fully and signed the following Forms as part of our Tender:
 - a) Tenderer's Eligibility; Confidential Business Questionnaire – to establish we are not in any conflict to interest.
 - b) Certificate of Independent Tender Determination – to declare that we completed the tender without colluding with other tenderers.
 - c) Self-Declaration of the Tenderer – to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal

Further, we confirm that we have read and understood the full content and scope of fraud and corruption as informed in "**Appendix 1- Fraud and Corruption**" attached to the Form of Tender.

Name of the Tenderer:

Name of the person duly authorized to sign the Tender on behalf of the Tenderer:

Title of the person signing the Tender: [

Signature of the person named above:

Date signed

Date signed _____ day of _____, _____

Notes

- * In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer
- ** Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender.

A. TENDERER'S ELIGIBILITY-CONFIDENTIAL BUSINESS QUESTIONNAIRE

Instruction to Tenderer

Tender is instructed to complete the particulars required in this Form, *one form for each entity if Tender is a JV*. Tenderer is further reminded that it is an offence to give false information on this Form.

(a) Tenderer's details

	ITEM	DESCRIPTION
1	Name of the Procuring Entity	
2	Reference Number of the Tender	
3	Date and Time of Tender Opening	
4	Name of the Tenderer	
5	Full Address and Contact Details of the Tenderer.	1. Country 2. City 3. Location 4. Building 5. Floor 6. Postal Address 7. Name and email of contact person.
6	Current Trade License Registration Number and Expiring date	
7	Name, country and full address (<i>postal and physical addresses, email, and telephone number</i>) of Registering Body/Agency	
8	Description of Nature of Business	
9	Maximum value of business which the Tenderer handles.	
10	State if Tenders Company is listed in stock exchange, give name and full address (<i>postal and physical addresses, email, and telephone number</i>) of state which stock exchange	

General and Specific Details

b) **Sole Proprietor**, provide the following details.

Name in full _____ Age _____ Nationality _____
 _____ Country of Origin _____ Citizenship _____

c) **Partnership**, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

d) **Registered Company**, provide the following details.

i) Private or public Company _____

ii) State the nominal and issued capital of the Company _____

Nominal US Dollars (Equivalent)..... Issued US Dollars
 (Equivalent).....

iii) Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

(e) **DISCLOSURE OF INTEREST- Interest of the Firm in the Procuring Entity.**

i) Are there any person/persons in (*Name of Procuring Entity*) who has/have an interest or relationship in this firm? Yes/No.....

If yes, provide details as follows.

	Names of Person	Designation in the Procuring Entity	Interest or Relationship with Tenderer
1			
2			
3			

ii) Conflict of interest disclosure

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
1	Tenderer is directly or indirectly controls, is controlled by or is under common control with another tenderer.		
2	Tenderer receives or has received any direct or indirect subsidy from another tenderer.		
3	Tenderer has the same legal representative as another tenderer		
4	Tender has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer or influence the decisions of the Procuring Entity regarding this tendering process.		
5	Any of the Tenderer’s affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the tender.		
6	Tenderer would be providing goods, works, non-consulting services or consulting services during implementation of the contract specified in this Tender Document.		
7	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract.		
8	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who would be involved in the implementation or supervision of the such Contract.		
9	Has the conflict stemming from such relationship stated in item 7 and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.		

f) Certification

On behalf of the Tenderer, I certify that the information given above is complete, current and accurate as at the date of submission.

Full Name _____ Title or

Designation _____

(Signature)

(Date)

B. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the _____ [Name of Procuring Entity] for: _____ [Name and number of tender] in response to the request for tenders made by: _____ [Name of Tenderer] do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____ [Name of Tenderer] that:

1. I have read and I understand the contents of this Certificate;
2. I understand that the Tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am the authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender on behalf of the Tenderer;
4. For the purposes of this Certificate and the Tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:
 - a) has been requested to submit a Tender in response to this request for tenders;
 - b) could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;
5. The Tenderer discloses that [check one of the following, as applicable]:
 - a) The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;
 - b) the Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and the Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;
6. In particular, without limiting the generality of paragraphs (5)(a) or (5)(b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - a) prices;
 - b) methods, factors or formulas used to calculate prices;
 - c) the intention or decision to submit, or not to submit, a tender; or
 - d) the submission of a tender which does not meet the specifications of the request for Tenders; except as specifically disclosed pursuant to paragraph (5)(b) above;
7. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the works or services to which this request for tenders relates, except as specifically authorized by the procuring authority or as specifically disclosed pursuant to paragraph (5)(b) above;
8. the terms of the Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening, or of the awarding of the Contract, whichever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (5)(b) above.

Name _____ Title _____ Date _____

[Name, title and signature of authorized agent of Tenderer and Date].

C. SELF - DECLARATION FORMS

FORM SD1

SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.

I,, of Post Office Box being a resident of in the Republic of do hereby make a statement as follows: -

1. THAT I am the Company Secretary/ Chief Executive/Managing Director/Principal Officer/Director of (*insert name of the Company*) who is a Bidder in respect of Tender No. for (*insert tender title/description*) for (*insert name of the Procuring entity*) and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.
3. THAT what is deponed to herein above is true to the best of my knowledge, information and belief.

..... (Title)
..... (Signature) (Date)

Bidder Official Stamp

FORM SD2

SELF DECLARATION THAT THE PERSON/TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE

I, of P. O. Box being a resident of in the Republic of do hereby make a statement as follows: -

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of (*insert name of the Company*) who is a Bidder in respect of Tender No. for (*insert tender title/description*) for (*insert name of the Procuring entity*) and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/or agents of (*insert name of the Procuring entity*) which is the procuring entity.

3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of (name of the procuring entity)

4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender

5. THAT what is deponed to herein above is true to the best of my knowledge information and belief.

.....
(Title)

.....
(Signature)

.....
(Date)

Bidder's Official Stamp

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I (person) on behalf of (*Name of the Business/ Company/Firm*) declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act, 2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal and my responsibilities under the Code.

I do hereby commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.

Name of Authorized signatory..... Sign.....

Position.....

Office address..... Telephone..... E-mail.....

Name of the Firm/Company.....

Date..... (Company Seal/ Rubber Stamp where applicable)

Witness

Name Sign.....

Date.....

D. APPENDIX 1-FRAUD AND CORRUPTION (*Appendix 1 shall not be modified*)

1. Purpose

2. The Government of Kenya's Anti-Corruption and Economic Crime laws and their sanction's policies and procedures, Public Procurement and Asset Disposal Act (*no. 33 of 2015*) and its Regulation, and any other Kenya's Acts or Regulations related to Fraud and Corruption, and similar offences, shall apply with respect to Public Procurement Processes and Contracts that are governed by the laws of Kenya.

3. Requirements

The Government of Kenya requires that all parties including Procuring Entities, Tenderers, (applicants/proposers), Consultants, Contractors and Suppliers; any Sub-contractors, Sub-consultants, Service providers or Suppliers; any Agents (whether declared or not); and any of their Personnel, involved and engaged in procurement under Kenya's Laws and Regulation, observe the highest standard of ethics during the procurement process, selection and contract execution of all contracts, and refrain from Fraud and Corruption and fully comply with Kenya's laws and Regulations as per paragraphs 1.1 above.

Kenya's public procurement and asset disposal act (*no. 33 of 2015*) under Section 66 describes rules to be followed and actions to be taken in dealing with Corrupt, Coercive, Obstructive, Collusive or Fraudulent practices, and Conflicts of Interest in procurement including consequences for offences committed. A few of the provisions noted below highlight Kenya's policy of no tolerance for such practices and behavior: -

- 1) a person to whom this Act applies shall not be involved in any corrupt, coercive, obstructive, collusive or fraudulent practice; or conflicts of interest in any procurement or asset disposal proceeding;
- 2) A person referred to under subsection (1) who contravenes the provisions of that sub-section commits an offence;
- 3) Without limiting the generality of the subsection (1) and (2), the person shall be: -
 - a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or
 - b) if a contract has already been entered into with the person, the contract shall be voidable;
- 4) The voiding of a contract by the procuring entity under subsection (7) does not limit any legal remedy the procuring entity may have;
- 5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a procurement: -
 - a) shall not take part in the procurement proceedings;
 - b) shall not, after a procurement contract has been entered into, take part in any decision relating to the procurement or contract; and
 - c) shall not be a subcontractor for the bidder to whom was awarded contract, or a member of the group of bidders to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.
- 6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within his or her duties shall disclose the conflict of interest to the procuring entity;
- 7) If a person contravenes subsection (1) with respect to a conflict of interest described in subsection (5)(a) and the contract is awarded to the person or his relative or to another person in whom one of them had a direct or indirect pecuniary interest, the contract shall be terminated and all costs incurred by the public entity shall be made good by the awarding officer. Etc.

In compliance with Kenya's laws, regulations and policies mentioned above, the Procuring Entity:

- a) Defines broadly, for the purposes of the above provisions, 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 misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain 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:
 - deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya 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
 - acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.
- b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:
- "fraudulent practice" includes a misrepresentation of fact in order to influence a procurement or disposal process or the exercise of a contract to the detriment of the procuring entity or the tenderer or the contractor, and includes collusive practices amongst tenderers prior to or after tender submission designed to establish tender prices at artificial non-competitive levels and to deprive the procuring entity of the benefits of free and open competition.
- c) Rejects a proposal for award¹ of a contract if PPRA determines that the firm or individual recommended for award, 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;
 - d) Pursuant to the Kenya's above stated Acts and Regulations, may sanction or recommend to appropriate authority (ies) for sanctioning and debarment of a firm or individual, as applicable under the Acts and Regulations;
 - e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring (i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub-consultants, Service providers, Suppliers, Agents personnel, permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect² all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and
 - f) Pursuant to Section 62 of the above Act, requires Applicants/Tenderers to submit along with their Applications/Tenders/Proposals a "Self-Declaration Form" as included in the procurement document declaring that they and all parties involved in the procurement process and contract execution have not engaged/will not engage in any corrupt or fraudulent practices.

¹For the avoidance of doubt, a party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and tendering, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

² Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Investigating Authority or persons appointed by the Procuring Entity to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

FORM OF TENDER SECURITY- [Option 1–Demand Bank Guarantee]

Beneficiary:

Request for Tenders No:

Date: _____

TENDER GUARANTEE No.: _____

Guarantor: _____

1. We have been informed that _____ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (hereinafter called "the Tender") for the execution of _____ under Request for Tenders No. _____ ("the ITT").
2. Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.
3. 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 _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:
 - (a) has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Applicant; or
 - b) having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension there to provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance.
4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) thirty days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[signature(s)]

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

FORMAT OF TENDER SECURITY [Option 2–Insurance Guarantee]

TENDER GUARANTEE No.: _____

1. Whereas [*Name of the tenderer*] (hereinafter called "the tenderer") has submitted its tender dated [*Date of submission of tender*] for the [*Name and/or description of the tender*] (hereinafter called "the Tender") for the execution of__under Request for Tenders No._____(“the ITT”).
2. KNOW ALL PEOPLE by these presents that WE of [**Name of Insurance Company**] having our registered office at (hereinafter called "the Guarantor"), are bound unto [*Name of Procuring Entity*] (hereinafter called "the Procuring Entity") in the sum of (Currency and guarantee amount) for which payment well and truly to be made to the said Procuring Entity, the Guarantor binds itself, its successors and assigns, jointly and severally, firmly by these presents.

Sealed with the Common Seal of the said Guarantor this ___day of _____ 20 __.

3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Applicant:
 - a) has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Principal; or
 - b) having been notified of the acceptance of its Tender by the Procuring Entity during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers ("ITT") of the Procuring Entity's Tendering document.

then the guarantee undertakes to immediately pay to the Procuring Entity up to the above amount upon receipt of the Procuring Entity's first written demand, without the Procuring Entity having to substantiate its demand, provided that in its demand the Procuring Entity shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii)twenty-eight days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[Date]

[Signature of the Guarantor]

[Witness]

[Seal]

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

TENDER-SECURING DECLARATION FORM

[The Bidder shall complete this Form in accordance with the instructions indicated]

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

Tender No.:.....*[insert number of tendering process]*

To:.....*[insert complete name of Purchaser]* I/We, the undersigned, declare that:

- 1. I/We understand that, according to your conditions, bids must be supported by a Tender-Securing Declaration.
- 2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of *[insert number of months or years]* starting on *[insert date]*, if we are in breach of our obligation(s) under the bid conditions, because we – (a) have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; or (b) having been notified of the acceptance of our Bid by the Purchaser 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 instructions to tenders.
- 3. I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:
 - a) our receipt of a copy of your notification of the name of the successful Tenderer; or
 - b) thirty days after the expiration of our Tender.
- 4. I/We understand that if I am/we are/in a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid, and the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed:..... Capacity / title (director or partner or sole proprietor, etc.)

..... Name:..... Duly authorized to sign the bid for and on behalf of: *[insert complete name of Tenderer]*

Dated onday of*[Insert date of signing]* Seal or stamp

Appendix to Tender

Schedule of Currency requirements

Summary of currencies of the Tender for _____ *[insert name of Section of the Works]*

Name of currency	Amounts payable
Local currency: _____	
Foreign currency #1: _____	
Foreign currency #2: _____	
Foreign currency #3: _____	
Provisional sums expressed in local currency _____	[To be entered by the Procuring Entity]

PART II - WORK REQUIREMENTS

SECTION V - DRAWINGS

Note

1. A list of drawings should be inserted here (**VOLUME 3 OF THE BIDDING DOCUMENTS**)
2. The actual drawings including Site plans should be annexed in a separate booklet. (**VOLUME 3 OF 4**)

SECTION VI – SPECIFICATIONS



**KENYA REINSURANCE CORPORATION
LTD (KENYA RE)**

Bidding Document

for the

Procurement of Works

OPEN BIDDING

VOLUME 4 OF 4

(SPECIFICATIONS: FOR BUILDING WORKS)

Subject of Procurement: Proposed Fitout of Kenya Reinsurance Corporation Ltd Offices on First Floor Level , Redstone House , Plot 07 Bandali Rise, Kampala, Uganda

Date of Issue: August, 2021

BIDDING DOCUMENTS SUMMARY PAGE

Volume 1 of 4: Bidding Procedures, Employer's Requirements and Conditions of Contract & Contract Forms.

Volume 2 of 4: Bills of Quantities

Volume 3 of 4: Drawings

Volume 4 of 4: Specifications for the Works comprising:
(A) Specifications for Building works
(B) Code for Electrical Installations in Buildings

VOLUME 4 OF 4

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A. GENERAL SPECIFICATIONS

1.0

GENERAL NOTES

SPECIFICATIONS

1.0 GENERAL NOTES

(Including General Specifications and General Conditions)

NOTE: The Contractor is to allow in his rates for all expenses in connection with testing of materials as specified including the supply and preparation of materials to be tested, the cost of laboratory charges, etc.

“Equivalent of Standards and Codes and Brand Names”

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than the standards of codes specified will be accepted subject to the Architect/Project Manager’s prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Architect/Project Manager at least 28 days prior to the date when the Contractor desires the Architect/Project Manager’s consent. In the event, the Architect/Project Manager determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

2.0 GENERAL ITEMS

2.0 **GENERAL ITEMS**

2.1 **Materials generally**

All materials shall be new and of the qualities and kinds specified herein and equal to approved samples. Deliveries shall be made sufficiently in advance to enable samples to be taken and tested if required. No materials shall be used until approved materials which are damaged in any way shall be immediately removed from the site at the Contractor's expense.

2.2 **Alternatives to proprietary brands or specified standards**

Where materials are specified to a particular standard or by their proprietary names or where fittings are specified by catalogues, numbers or descriptions, the Contractor may offer alternatives which are of equal quality. In such event the tenderer must be qualified by listing the various alternatives to be used. The successful tenderer must then subsequently submit samples of the alternative materials to the Architect as soon as practicable after the award of the Contract, and must obtain his written approval before purchasing.

2.3 **Measuring and testing equipment**

The Contractor shall provide on the Site the following equipment for carrying out measuring and control tests and maintain the same in full working order, if relevant to the scope of the works:-

- a) Straight edges 2 metres and 4 metres long for testing accuracy of finished surface
- b) 150 mm Steel cube moulds with base plates and tamping rods to B.S. 1881.
- c) Two 30 metres steel tapes.
- d) One dumpy or quick set level and staff.

2.4 **Minor details of construction**

Minor details of construction which are fairly and obviously intended and which may not definitely be referred to in this Specification and/or Drawings, but which are usual in sound building practice and are essential to the Works, shall be considered as included in the Contract Sum.

2.5 **Samples**

The Contractor is to allow in his rates for all expenses in connection with testing of materials as specified including the supply and preparation of materials to be tested, the cost of laboratory charges, etc.

3.0 DEMOLITIONS AND ALTERATIONS

3.0 DEMOLITIONS AND ALTERATIONS

3.1 GENERALLY

The Contractor is required to visit the site of the existing building and ascertain for himself the nature of the works and no claim arising from lack of knowledge in this respect will be entertained. The dimensions and quantities given in this section are approximate and the Contractor is referred to the site to ascertain the exact nature of the work.

The items pulling down and alterations are to include for both labour and materials and for any shoring, needling and temporary works in connection therewith. The Contractor must allow in his pricing for making good all works disturbed in all trades and carting away all debris.

The Contractor must give all the necessary notices and must exercise due care in the demolitions. He must not collapse large sections of walls, floors, etc. and must provide all necessary shoring and supports during the demolitions.

During demolition the Contractor shall keep the debris constantly watered to minimize the dust arising and this shall be included in his prices.

All materials arising from the demolitions, unless specifically stated otherwise, are to become the property of the Contractor and any credit allowed for the value of such materials shall be shown in the space provided, if any or valued and negotiated with the Project Manager.

All materials, including rubbish, shall be removed from the site as soon as possible.

The Contractor is to erect dust-proof screens to the approval of the Project Manager where deemed necessary and to remove them on completion of the works, all to the Project Manager's satisfaction. Such screens shall be deemed to have been priced for.

3.2 INTERPRETATION OF TERMS

- a) "Demolish" shall be deemed to mean cutting away, breaking up, demolishing, pulling down, taking down, removing, etc., as the context requires and shall include in all cases temporarily strutting and supporting and making good remaining works as necessary, and clearing away and removing from site all debris, etc.
- b) "Remove" shall be deemed to mean taking down, hacking up, breaking down, removing, etc., and clearing away from site and all other expenses thereby entailed.
- c) "Making good" shall be deemed to mean all making good, fitting, facing up, plastering, repairing and repainting of match existing work.
- d) "To match" shall mean to be equal to relevant existing work in design, workmanship and all other respects.
- e) "Re-fix" shall apply to existing materials arising from the works and shall mean take from store and fix in new position, including making good, repairing and adjusting as necessary.

4.0 EXCAVATIONS AND EARTHWORKS

4.0 **EXCAVATIONS AND EARTHWORKS**

4.1.0 **STANDARDS AND CODES OF PRACTICE**

The Contractor shall comply with requirement of the following codes of practice:-

4.1.1 **Codes of Practice:**

- | | | |
|----|---|--|
| a) | Site investigations | C.P. 2001 |
| b) | Earthworks | C.P. 2003 |
| c) | Foundations | C.P. 2004 |
| d) | Protection of building
against water from the ground | C.P. 102 |
| e) | NOTE: | The Contractor's attention is drawn to section "D" of The
Standard Method of Measurements for Building Works. |

4.2.0 **GENERALLY**

4.2.1 **Visit to the Site**

The Contractor shall visit the site and ascertain for himself the nature of the soil to be excavated. The rates for excavation shall include excavation in any type of material or made up ground excluding rock as defined below. No claim will be allowed for lack of knowledge in this respect.

4.2.2 **Levels**

Immediately following the issue of the order to commence, the Contractor shall carry out and record a check level grid of the site which shall be agreed between the Architect and the Contractor within one week of the above order being given.

4.2.3 **Setting out**

Setting out shall be approved before work is commenced.

4.2.4 **Clear Site**

Generally, clear the site of all shrubs and trees, (i.e. not exceeding 600 mm girth), grub up roots and fill the holes with red earth. Trees and shrubs not directed for destruction to be made good at the Contractor's expense.

4.2.5 **Excavation for Bases and Strip Foundation**

Excavations for bases and strip foundations shall be to the widths, depth, and levels shown on the Architect's drawings. Rates shall be deemed to include for whatsoever alternative method the Contractor chooses to adopt.

4.2.6 Inspection of Excavations

The Architect shall be called to inspect the completed excavations before any permanent works can be commenced in them. The Contractor shall keep all excavations dry and free from rain or other surface water.

4.2.7 Excavations Below Required Levels

Excavations made below required levels shall be filled with Mass Concrete (1:4:8) at the Contractor's expense.

4.2.8 Disposal of Earth

Rates for filling of disposal of earth shall include for any double handling, except that resulting from a written order by the Architect to deposit earth in temporary spoil heaps pending its final disposal. Filling shall be in approved filling material to required levels in specified layers carefully rammed and consolidated. Disposal of all surplus excavated material shall be as instructed. Rates shall include for loading and wheeling off the site to a tip to be provided by the Contractor.

4.2.9 Hardcore

Hardcore shall be stone, coarse gravel or other inert material yielding, when thoroughly consolidated, a freely porous bed and blinded with fine hardcore, ashes and similar materials shall include for all temporary retaining boards and for rolling with an 8-10 tonne roller unless otherwise described, in layers not exceeding 150 mm deep.

4.2.10 Anti-Termite Treatment

Anti-Termite treatment for new works shall be fine sprayed using an approved insecticide.

4.2.11 Underground Public/Private Services and Structures

The Contractor shall at his own expense and before commencing excavations ascertain in writing from the utility companies, Local Authorities and other public bodies, companies and persons who may be affected, the position and depths of their respective ducts, cables, mains, or piles and appurtenances.

The Contractor shall there upon search and locate such services in order to appropriately prop, protect, underpin, alter, divert, restore and make good all pipes, cables or ducts, poles or wires and their appurtenances disturbed or damaged during the progress of the works or consequent thereof.

Such services as required to be removed or altered by virtue of the situation of the permanent work and note the manner in which the work is carried out, shall be so removed or altered at the expenses of the Employer.

4.2.12 Rock Excavation

The term "Rock" shall mean any natural material which cannot be dislodged by a pick and which can only be removed by the use of compressors or by blasting or

wedging. This classification does not include materials that can be removed by means other than drilling and blasting or drilling and wedging, but which for reasons of economy in excavating, the Contractor prefers to remove by drilling and wedging. Unless specifically stated hereinafter, the Contractor must assume that permission to remove rock will be refused and he must therefore price for removing rock by compressors, etc. only.

4.2.13 Blasting

Blasting will only be allowed with the prior express permission of the Architect.

All blasting operations shall be carried out at the Contractor's sole risk and cost in accordance with any Government regulations in force for the time being, and any special regulations laid down by the Architect governing the use and storage of explosives.

4.2.14 White Ants' Nests

The Contract must destroy any termite nests found within the perimeter of the buildings and within a distance of 20 meters from the building externally and take out and destroy queens, impregnate holes and tunnels with approved insecticide and back-fill with hard material well rammed and consolidated. The rate will be deemed to include for this destruction and treatment.

4.3.0 MATERIALS

4.3.1 Blinding

Blinding shall be of the same material as the hardcore bed, crushed and graded from 4 mm upwards, free from clay, chemical or other pollutions, pests, weeds, roots and rubbish.

4.3.2 Hardcore

Hardcore shall be of good, clean, hard, broken stone, broken before placing to pass a 100 mm ring and free from all rubbish.

4.4.0 WORKMANSHIP

4.4.1 Generally

The Contractor shall control grading around the buildings so as to prevent water running into excavated areas or into completed sections of the work.

4.4.2 Bottoms of excavations to be approved

The Contractor shall give the Architect at least 48 hours' notice (this time shall be doubled if the site of the works is more than 100 km from the nearest permanent office of the Architect) when the excavations will be ready for inspection and agreement of the level thereof. If a good bearing bottom is not obtained at the level shown, the Architect is to be informed. No concrete is to be laid until the bottom has been approved and the level thereof taken. Any concrete work or other work

done before such approval, shall, if so directed be removed and new work substituted after excavations have been approved, at the Contractor's expense. Notwithstanding such approval, any bottom which becomes waterlogged or otherwise spoilt after approval, shall be cleaned out and reformed to the Architect's approval before any concrete is placed. Before placing concrete or masonry on rock surfaces, the surfaces shall be leveled off or shelved to a slope not exceeding 25 mm per 300 mm.

4.4.3 Disposal of excavated material

Surplus excavated material where directed or required shall be removed from the site to a tip, the location of which shall first be approved by the Architect in writing. All fees and charges in connection shall be deemed to be included in the Contract Sum.

4.4.4 Timbering, planking, strutting, etc.

The Contractor shall provide all necessary timbering, planking and strutting, etc., to uphold the faces of excavation, which shall only be removed when it is safe to do so. Where the Architect instructs or agrees that it is necessary for the safety of the works to leave in timbering and, planking and strutting, etc., such timber shall be measured and agreed before covering up.

4.4.5 Filling

Return filling around foundations and filling to make up levels under floors and pavings shall not be deposited until the formation level has been approved by the Architect. In no case shall fill be deposited on a muddy foundation. Filling shall be deposited in layers not exceeding 150 mm in depth before compaction and shall be compacted by rolling, pneumatic tamping or other approved means over the whole of the area.

If necessary the filling shall be allowed to dry or be moistened to the correct moisture content before compaction. The finished surface shall be approved by the Architect prior to further construction work thereon.

No excavation or foundation work shall be filled in or covered up until all measurements necessary for the adjustment or variations have been made.

4.4.6 Consolidation of hardcore

Hardcore shall be consolidated with a roller, vibrating roller, or mechanical punner to a compaction equivalent to that obtained with a 2.5 to 3 tonne roller, care being taken that no damage is done to the foundation walls.

Hardcore shall be blinded and have the interstices filled with blinding as described herein. Before placing concrete hardcore beds shall be well watered to prevent water absorption from the concrete.

Where described as blinded to receive any membrane, the blinding shall be finished and compacted with fine material which will not cause the membrane to puncture under wheel or foot traffic or by the placing of concrete.

4.4.7 Protection

The Contractor shall protect all graded and filled areas from the actions of the weather elements. Any settlement or washing away that occurs prior to acceptance of the works shall be repaired and grades re-established to the required elevations and slopes.

4.4.8 Laying polythene membrane

Where joints occur, there is to be a minimum of 300 mm weltd lap or joint made with approved tapes.

The Contractor shall ensure that the membrane will not be pierced during laying and concreting.

4.4.9 Anti-termite treatment

Anti-termite treatment shall be carried out using 'Aldrex 48' or other equal and approved chemical by the Architect in writing diluted to a water emulsion containing a minimum of 0.5% of the chemical.

The treatment shall be applied to the whole area of the hardcore bed and tops of foundation walls immediately prior to the placing of the concrete floor slab at the rate of 7 litres per square meter. The treatment at the same rate shall also be applied to all excavations for gum pole bases before any concrete is poured and around the outside of the base for a distance of 500 mm from the edge of the base excavation. To facilitate this, all excavated soil from the base is to be dumped more than 500 mm from the excavation.

Treatment shall not be applied whilst it is raining or to surfaces of filling which is wet.

For in-situ anti-termite treatment for existing works, drill 5/8 inch diameter holes 1 foot deep and not more than 2 feet between the holes and 3 inches from the inside faces of all the external perimeter walls of all rooms. Into each hole, inject under pressure approximately 5 litres of a suitable termiticide such as Aldrex 48% E.C. or Pyrinex Professional Formula 42% E.C., as supplied by an approved supplier or other equal and approved supplier/manufacturer, at concentrations of 0.5% and 1% a.i. respectively. The holes are then sealed with the nearest matching material.

The Contractor's attention is drawn to the fact that these treatments are toxic to animals and human life and he shall prevent contamination of water supply systems,

shall cover up and protect treated areas immediately after treatment and post written notices informing of the treatment at prominent points on the site and the building.

Immediately following treatment, the Contractor shall provide to the Architect for onward transmission to the Client, a written five year guarantee which guarantees:-

- a) That the chemical used complies with this specification and has been used in the concentrations stated herein,
- b) that the guarantee shall be continuous for a period of five years from the date of treatment,
- c) that should infestation by any termites appear before the end of the five year period, the Contractor will return and re-treat as necessary to eliminate the infestation entirely and at his own cost on each occasion that infestation appears within the five year period.

The Contractor shall carry out annual inspections commencing three months after treatment and continuing to the end of the guarantee period to ascertain the presence of termites, and should any presence be found, the Contractor shall re-treat as necessary to eliminate any infestation entirely and at his own cost on each occasion that infestation is found.

5.0 CONCRETE WORK

5.0 CONCRETE WORK

5.1.0 STANDARDS AND CODES OF PRACTICE

The following authoritative standards are referred to hereinafter:

<u>B.S</u>	<u>Date</u>	<u>Title</u>
12	1989	Portland Cement (ordinary and rapid hardening)
812		Methods for sampling and testing of mineral aggregates, Sand and fillers.
882	1983	Aggregate from natural sources for concrete (including granolithics)
1881		Methods of testing concrete.
5328	1981	Methods for specifying concrete.
2499	1973	Hot applied joint sealants for concrete pavements.
3148	1980	Tests for water mixing concrete.
3921	1985	Clay Bricks.
4251	1974 (1980)	Truck type concrete
4449	1988	Carbon steel bars for the reinforcement of concrete.
4466	1981	Bending dimensions and scheduling of bars for the reinforcement of concrete (old edition)
4483	1985	Steel fabric for the reinforcement of concrete.
5075		Concrete Admixtures.
6073: Pt. 1	1981	Precast concrete blocks.
8110: Pt. 1 + 2	1985	The structural use of concrete
5950		The use of structural steel in buildings.
5400: Pt. 5	1979	Steel, concrete and composite bridges.
8807	1987	The structural use of concrete for retaining aqueous liquids.

American Society for Testing and Material Standards as published by the American Society for Testing and Materials, 1916 Ract St., Philadelphia pa 19103 U.S.A. (Abbreviated in Test to AST).

<u>ASTM</u>	<u>Date</u>	<u>Title</u>
C88	73	Soundness of aggregates by use of Sodium Sulphate.
C234	71	Comparing concrete on the basis of the bond developed with reinforcing steel.
C289	71	Potential reactivity of aggregates (chemical method)

The following codes of practice are referred to hereinafter:

British Standard Codes of Practice published by the Council for Codes of Practice British Institution, 2 Park Street, London W1A 2BS, England (abbreviated in text to C.P.)

<u>C.P</u>	<u>Date</u>	<u>Title</u>
CP. 117: pt. 1:	1965	Composite construction in structural steel and concrete.
B.S. 3110	1972	Safe use of cranes (mobile cranes, tower cranes and derrick cranes)

Should the contractor wish to substitute any of the authoritative standards or codes of practice for any listed above, he should submit details of any such standard or code together with two complete copies of the same to the Architect for approval with his tender. Approval will only be given to the use of such standard or code where the Architect considers the proposed standard or code of practice will give a quality of finished work equal to or better than the specified standard.

All in-situ concrete shall be in accordance with BS 8110 except where superceded by this specification.

All precast concrete shall be in accordance with BS 8110 except where superceded by this specification.

NOTE: The Contractor's attention is drawn to Section 'F' of the Standard Method of Measurements of Building Works.

5.2.0 **GENERAL**

5.2.1 **Samples and Materials Generally**

The Contractor shall, when required, provide for approval samples of all materials to be incorporated in the works. Such samples when approved shall be retained by the Architect and shall form the standard for all such materials incorporated. No deliveries to the site should commence before such approval is obtained.

No materials of any description will be used without prior sanction by the Architect and any condemned as unfit for use in the works must be removed immediately from site by and without recompense to the Contractor.

5.2.2 **Test Certificates**

The Contractor shall provide the Architect with three copies of all test reports or certificates that are or may be required by this Specification.

5.2.3 **Suppliers**

As soon as possible after the contract has been awarded and before finalizing any order for materials to be incorporated in the works, the contractor shall submit the names of any proposed suppliers to the Architect for approval.

Each supplier must be willing to admit the Architect, or his authorized representatives, to his premises during working hours for the purposes of obtaining samples of the materials in question.

The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no sources of supply will be changed without proper approval.

5.2.4 **Drawings**

The Contractor should check all drawings carefully before any part of the work is carried out. Any discrepancy should be reported to the Architect immediately for his clarification. The Contractor shall be responsible for any costs arising out of his failure to report such discrepancies to the Architect, in good time.

The Contractor shall ensure that he has all relevant drawings and bar bending schedules for any part of the works, well in advance of the executions of that part of the works. Any costs arising out of the Contractor's failure to ask for related drawings, or bending schedules in writing, in good time, shall be the responsibility of the Contractor. The same shall hold true even if the contractor has submitted a programme of works at commencement.

5.2.5 **Bending Schedules**

The Architect will issue bar bending schedules in accordance with B.S. 4466 (1981). The Contractor should check these against the drawings before any cutting, bending or construction involving the schedules is started. Any discrepancy should be reported to the Architect immediately for his clarification. The Contractor shall be responsible for any delays or additional work caused solely by his failure to check the schedules.

5.2.6 **Approval**

Well before construction commences, the Contractor shall supply to the Architect for his approval, details of his proposed layouts of concreting plant and on site workshops, details of formwork systems and the construction devises, e.g. cranes, chutes, scaffolding, etc. which he proposes using for the structural work. The information is to be sufficiently detailed to enable the Architect to approve or otherwise.

The Contractor should note that further approvals are required by this specification before construction starts. The Contractor is wholly responsible for obtaining these approvals and no claim for delays will be entertained due to the Contractor's failure to obtain such approvals in adequate time.

5.2.7 **Cement**

In addition to the above Standards and Codes, cement shall comply with the following Kenya Standards:-

- | | | | |
|----|------------------------------------|---|------------|
| a) | Portland Cement | - | K.S. 02-21 |
| b) | Rapid hardening cement | - | K.S. 02-21 |
| c) | Sulphate resisting Portland Cement | - | B.S. 4027 |

Cement, unless so otherwise specified, shall be ordinary Portland cement complying with B.S. 12. Rapid hardening cement may be used in lieu of the ordinary Portland cement only with prior approval of the Architect, provided that all conditions applying to its use are strictly observed. Any additional expense in connection with the use of such cement shall be borne by the Contractor.

The use of high alumina cement will not be permitted.

5.2.8 **Cement**

The Contractor shall obtain a manufacturer's certificate of test in accordance with the appropriate standard for each consignment of cement delivered to the site and shall immediately forward copies of the same to the Architect for his retention.

Notwithstanding the manufacturer's certificate, the Architect may require that any cement delivered to the site be sampled and tested. Any batch of cement so tested which fails to comply with the specification will be rejected.

All cement, unless delivered in bulk shall be stored in a weatherproof shed, the floor of which shall be raised at least 150 mm above the ground to allow free air circulation. Cement delivered in bulk shall be stored in a weatherproof silo. All cement shall at all times be protected from deterioration.

All cement shall be delivered to the site in the original sealed bags of the manufacturer or in approved bulk containers.

Each consignment of cement shall be kept separate, identified and used in order of delivery. No two types of cement shall be used in combination.

Any cement upon inspection is considered by the Architect to have deteriorated in any way will be rejected.

5.2.9 Aggregate

In addition to the above Standards and Codes, aggregate shall comply with K.S. 02-95.

Any aggregate for concrete shall, unless otherwise specified, be aggregate from natural sources complying with B.S. 882. Additionally, the flakiness index when determined by the sieve method described in B.S. 812 shall not exceed 35 for any size of concrete aggregate. Fine aggregate within or finer than zone 4 of B.S. 882 shall not be used.

When tested for soundness in accordance with ASTM Test C8873 the loss of weight after 5 cycles shall not exceed 5% (percent) for any aggregate.

Aggregate which is potentially reactive when tested in accordance with ASTM Test C. 289-71 for the alkali aggregate reaction shall not be used. The Standard for acceptance being that test results shall plot to the left of the solid line which is shown in Figure 2 of the test standard.

Well before any concreting work, the Contractor shall forward to the Architect for approval, details of his proposed source of supply of aggregate, giving the aggregate group classification and typical physical properties as required by B.S. 882.

The Contractor shall provide the Architect with a certificate for his retention showing that all aggregates regularly comply with the requirements for this specification.

The Architect may require that any aggregate be tested for soundness in accordance with ASTM Test C88-73 before giving approval to any proposed source of supply.

The Architect may require that any aggregate be tested for potential reactivity in accordance with ASTM Test C.289-71.

Notwithstanding any certificate of compliance, the Architect may at any time require that any aggregate delivered to the site be sampled and tested. Any

aggregate so tested which fails to comply with this specification will be rejected.

Coarse aggregate shall be delivered ready screened or screened on site into separate nominal single sizes within limits given in B.S. 882.

Aggregate of different sizes or types shall be stored in different hoppers or different stockpiles on approved well-drained paved areas which shall be separate from each other. Stockpiles shall be protected against contamination from any source.

Any aggregate which has become contaminated or which does not conform with the above requirements may be rejected by the Architect.

5.2.10 Water

Water for use in mixing with cement or for curing concrete shall be from an approved source, clean, fresh and free from organic and other deleterious matter.

The Architect may require that any water for the works be sampled and tested by the method given in the B.S. 3148 will be rejected.

Water for use in mixing with cement shall neither be hotter than 25° C (77 deg.F) - or colder than 5 deg. C (41 deg. F) at the time of mixing.

5.2.11 Steel Rod Reinforcement

Steel Rod Reinforcement shall consist of:-

- a) Mild steel bars complying with B.S. 4449 and K.S. 02-22.
- b) Hot rolled high yield bars complying with B.S. 4449
- c) Cold worked high yield bars complying with B.S. 4449 as described in the drawings.

Where cold worked high yield bars are to be used, these shall be square twisted bars formed by a torsion controlled process.

The Contractor shall obtain manufacturer's certificate of test in accordance with the appropriate standard for each steel batch relating to reinforcement delivered to site and shall immediately forward copies of the same to the Architect for his retention.

Where hot rolled high yield deformed bars are to be used, the results of bond tests to ASTM 234-71 using concrete of the same quality as that to be used in the works, shall be forwarded to the Architect.

Notwithstanding the manufacturer's certificate, the Architect may require that any reinforcement delivered to the site be sampled and tested. Any

reinforcement so sampled and tested which fails to comply with this specification will be rejected.

All reinforcement shall be delivered to the site either as straight bars or ready cut and bent to shape.

All reinforcement shall be stored in clean conditions in an orderly manner to the satisfaction of the Architect such that the batch to which each piece belongs can be readily identified.

5.2.12 Steel Fabric Reinforcement

Steel fabric reinforcement shall be electrically cross welded steel mesh reinforcement complying with B.S. 4483.

5.2.13 Tying Wires

Tying wires for fixing reinforcement shall be either:

- a) No. 16 gauge soft annealed iron wire; or
- b) No. 18 gauge stainless steel wire.

5.2.14 Spacers

Spacer blocks required for ensuring that the reinforcement is correctly positioned shall be as small as possible consistent with their purpose, of a shape acceptable to the Architect, and designed so that they will not overturn when the concrete is placed. Unless otherwise approved, they shall be made of concrete with 10 mm maximum aggregate size and mix proportions to produce the same strength as the adjacent concrete. S.W.G. 18 wire shall be cast in the block for the purpose of tying it to the reinforcement.

Spacer blocks of concrete shall not be used until at least 7 days old.

No admixtures or cement containing additives shall be used in concrete unless specified or approved by the Architect. Such approval will not be given unless in the Architect's opinion specific benefit to the density or quality of the concrete will result.

5.2.15 Wall Ties

Wall ties between concrete and adjoining block or brick walling shall be "Abbey" slots and anchors as supplied by Abbey Building Suppliers Limited or similar and approved. Wall ties must be provided at concrete and block or brick wall butting surface.

5.2.16 Joint Fillers

Joint Fillers, unless otherwise stated, shall be "Flexcell" as manufactured by Expandite Ltd. or similar and approved and placed in accordance with the manufacturer's instructions.

5.2.17 Joint Sealants

Shall be described in the drawings and approved by the Architect. Sealants shall be used strictly with the manufacturer's instructions.

Poured joint sealing compound shall be a hot poured rubber bitumen compound complying with the requirements of B.S. 2499.

5.2.18 Water Stops

Water stops, unless otherwise stated, shall be "Sika waterbar" as manufactured by Sika International or similar and approved and placed and jointed in accordance with the manufacturer's instructions. In addition, the method of holding the waterbar in position, while concreting, must be to the approval of the Architect.

5.3.0 REINFORCEMENT

5.3.1 Workmanship

Reinforcement shall be bent accurately in accordance with B.S. 4466 to the shape and dimensions shown in the schedules. All reinforcement shall be bent at temperatures in the range of 5° C and 100° C.

Cold worked or any high yield bars shall not be straightened or bent against once having been bent. When it is necessary to bend mild steel reinforcement already cast in the concrete, the internal radius of such bends shall be not less than twice the diameter of the bar.

No welding of reinforcement shall be carried out without the approval of the Architect.

All reinforcement shall be, at the time of concreting, free from mud, oil, mortar droppings, loose rust, paint, grease, mill scale or other deleterious matter. Reinforcement still 'blue' from the mill shall not be used.

All reinforcement shall be as where indicated on the drawings or as approved by the Architect. Unless otherwise indicated, the minimum lap length for rod reinforcement shall be 40 diameters for mild steel and 50 diameters for high tensile twisted bars.

A steel fixer shall be in attendance at all times when concreting is in progress to correct any errors, omissions or movement in the reinforcement.

In severe heat conditions, reinforcement shall be shaded from direct sunlight and hosed down with clean water prior to concreting to keep the reinforcement below 25° C. (77° F).

Notwithstanding any inspections and approvals regarding reinforcement, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies exactly with the details on the Drawings or Schedules or other written instructions by the Architect.

5.3.2 Composite Floor Slabs

Concrete hollow pots 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 true to shape, free from cracks or distortion, of adequate strength to support the concrete during placing and consolidation by vibration. Stocks are to be manufactured in accordance with the procedure specified in B.S. 2028 and to be of mix not weaker than 1:4:8 cement, sand, stone, using maximum 10 mm size aggregate. Samples must be approved before incorporation into the works.

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

Hollow clay pots where indicated for use in the composite floor slabs are to be 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 Architect. Any clay blocks subsequently delivered to site which in the opinion of the Architect are not of equal standard to the approved samples shall be rejected.

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

Defective or damaged pots are to be removed immediately from site.

The hollow pot floor construction is generally to be as shown on the Architect's drawings.

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

The open ends of hollow pots, if adjacent to concrete to be placed in-situ, are to be plugged or stopped to prevent the concrete from flowing in the void and the Contractor is to include for this in his rates.

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

Before concreting is carried out, the pots are to be thoroughly wetted.

Care should be taken during concreting that the width of ribs between the rows of pots and the solid in-situ concrete shown on the Drawings adjacent to stopping beams is not encroached upon by the pots.

Where holes for service occur, the necessary holes or pockets shall be accommodated by replacing of a hollow pot by in-situ concrete or the widening of a rib.

Prices for such holes through hollow pots slab construction are to include for the re-arrangement or substitution of the hollow pot with solid concrete or the widening of a rib.

The concrete topping shall be poured at the same time as the ribs between hollow pots.

Reinforcement shall be positioned accurately with the specified cover in accordance with the Drawings and using the particular spacer blocks as previously described.

Spacer blocks shall be provided at no more than 1.2 m centers.

Care must be taken during concreting that the reinforcement is not displaced.

5.3.4 Composite Construction of Beams and Columns

The Contractor shall provide a method statement for construction of concrete encased steel columns and beams. Notwithstanding the Architect's approval of this method statement, the responsibility of producing workmanship of the specified quality shall rest entirely with the Contractor. In addition the Contractor shall construct a sample of a concrete encased column and beam on site in accordance with the method statement for approval. If approved, all composite construction for the works shall be of a similar quality. The Contractor should allow for hoisting of steel beams and columns in his rates.

The Contractor shall maintain, on site for the duration of the contract, all equipment required for modifications to 'in-position' steel beams and columns.

The Contractor is to note that steel grade 43, shall be used in composite beams and steel grade 50 will be used in composite columns.

All connections of steel beams to columns and column splice connection details shall be as specified on the structural drawings.

5.4.0 FORMWORK

5.4.1 Definition

"Forms, falsework or shuttering" shall include all temporary moulds forming the concrete to the required shape together with any special lining that may be required to produce the concrete finish specified.

All timber for formwork, falsework and centering shall be sound wood, well seasoned and free from loose knots, shakes, large cracks, warping and other defects. Before use on the work, it shall be properly stacked and protected from injury from any source. Any timber which becomes badly warped or cracked, prior to the placing of concrete, shall be rejected.

If the Contractor proposes to use steel shuttering, he shall submit to the Architect, dimensioned drawings of all the component parts, and give details of the manner in which he proposes to assemble or use them. Steel

shuttering will only be permitted if it is sturdy in construction and if the manner of its use is approved by the Architect.

Struts and props shall, where required by the Architect, be fitted with double hardwood wedges or other approved devices so that the moulds may be adjusted and eased gradually when required. Wedges shall be spiked into position and any adjusting devices locked before the concrete is cast.

All forms shall be wood or metal and shall be built grout-tight and of sufficient rigidity to prevent distortion due to the pressure of the concrete and other loads incident to the construction operations. Forms shall be constructed and maintained so as to prevent warping and the opening of joints due to shrinkage of the timber.

All formwork shall be approved by the Architect before concrete is placed within it. The Contractor shall, if required by the Architect, provide the latter with copies of calculations of strength and stability of the formwork or false work but notwithstanding the Architect's approval of these calculations, nothing shall relieve the Contractor of his responsibilities for the safety or adequacy of the formwork.

5.4.2 False work and centering

Detailed plans for false work or centering shall be supplied by the Contractor to the Architect at least 14 days in advance of the time the Contractor begins construction of the false work. Notwithstanding the approval of the Architect of any designs of false work submitted by the Contractor, the Contractor shall solely be responsible for the safety and adequacy of the false work or centering.

All false work shall be constructed to provide the necessary rigidity and to support the loads from the weight of green concrete and shutting and incidental construction loads.

False work or centering shall be founded upon a solid footing safe against undermining and protected from softening. False work which cannot be founded on satisfactory footings shall be supported on piling which shall be spaced, driven and removed in a manner approved by the Architect. The Architect may require the Contractor to employ screw jacks, or hardwood wedges to take up any settlement in the formwork either before or during the placing of concrete.

False work shall be set to give the finished structure the required grade and camber shown on the drawings.

5.4.3 Form of Construction Joints

Where permanent or temporary joints are to be made in horizontal or inclined members, stout stopping off boards shall be securely fixed across the mould to form a grouting joint. The form of the permanent construction joints shall be as shown on the drawings.

Where reinforcement or water stops pass through the face of construction joints, the stopping off boards shall be drilled so that the bars or water stops can pass through or the board shall be made in sections with a half round indentation in the joint faces for each bar so that when placed, the board is a neat and accurate fit and not grout leaks from the concrete through the bar holes, joints or around the water stops.

The forms shall be restrained and unyielding and shall be so designed that the finished concrete will conform to the proper dimensions and contours. The design of the forms shall take into account the effect of vibration of concrete as it is placed.

All sharp edges inside the forms shall be provided with 25 mm by 25 mm triangular fillets, unless otherwise shown on the drawings or directed by the Architect.

Openings for the inspection and cleaning of the inside of shuttering for walls, piers and columns shall be formed in such a way that they can be closed conveniently before commencing to concrete.

When concrete is to be deposited to a steeper slope than 15° to the horizontal, top forms shall be used to enable the concrete to be properly compacted.

Form, clamps, tie bolts and anchors shall be used to fasten forms. The use of wire ties to hold forms in position during placing of concrete will not be permitted. Tie bolts and clamps shall be positive in action and of sufficient strength and number to prevent spreading or springing of the forms. They shall be of such type that no metal part shall be left within the specified concrete.

The cavities shall be filled shall be filled with grout or mortar and the surface left sound, smooth, even and uniform in color. All forms for outside surfaces shall be constructed with stiff walls at right angles to the studs and all form clamps shall extend through and fasten such walls.

The shapes, strength, rigidity, water tightness and surface smoothness of re-used forms shall be maintained all times. Any warped or bulged timber must be replaced. Forms which are unsatisfactory in any respect shall not be re-used.

All forms shall be treated with approved mould or similar oil or be soaked with water immediately before placing concrete to prevent adherence of concrete. Any materials which adhere to or discolour concrete shall not be used.

All forms shall be set and maintained true to the line designed until the concrete is sufficiently hardened. Forms shall remain in place or a period which shall be as specified hereinafter. When forms appear to be unsatisfactory in any way, either before or during the placing of concrete, the Architect shall order the work stopped until the defects have been corrected.

5.4.4 Release Agents

Only approved chemical release agents, mould creams (emulsions of water in oil) or oil containing a proportion of surfactant not exceeding 2% will be permitted. Water soluble emulsion and oils without surfactant shall not be used. Oil based release agents shall be applied at a ratio of 7m²/litre 24 hours in advance of concreting, preferably by spray or roller. Chemical release agents shall be applied in accordance with the manufacturer's recommendations.

The greatest care must be taken that all sawdust shavings, chips and other debris is removed from the formwork before concrete is placed in position and the necessary arrangements must be made by leaving out aboard in the bottom of the formwork or otherwise as required.

The erection, easing, striking and removal 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.

All projecting fins on the concrete surfaces after removal of formwork shall be chipped off, and any voids or honeycombing to any surface made good to the requirements of the Architect.

No patching of the concrete is to be done before inspection of the concrete surfaces as stripped.

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 Architect, props may be required to be left in position under slabs and other members for greater periods than those specified hereinafter.

5.4.5 Striking Times

It shall be the Contractor's responsibility that no distortion, damage, overloading or undue deflection is caused to the structure by the striking of formwork, but the Architect reserves the right to delay the time of striking in the interest of the work. Formwork shall not be struck until the concrete has sufficiently hardened. Approval of the Architect shall not relieve the Contractor of his liability to make good any concrete damaged by premature removal or collapse of forms. In no circumstances shall forms be struck until the concrete reaches a cube strength of at least twice the stress to which the concrete may be subjected at the time of striking.

The following times given in a day (24 hours) are the absolute minimum that will be permitted:-

Forms	Ordinary Portland Cement	Rapid Hardening Cement
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Walls, columns (unloaded), Beams sides	2	2
Slabs - props left under	7	2
Beams soffites - props left under	14	5
Slabs - props	14	5
Beams - props	18	8

The time for removal of forms as set out shall not apply to slabs and beams spanning more than 10 meters. For such spans appropriate times shall be recommended or advised by the Architect.

The periods given above are based on the removal of all props and formwork using ordinary Portland cement under average weather conditions. Adverse weather conditions or different cement may cause the above period to be increased. Should the Contractor wish to make use of reduced striking time, then he must satisfy the Architect that the strength of the concrete at such time and the structural system is adequate to withstand the dead and imposed loads applied to it. Before making use of reduced striking times the Architect's agreement must be obtained in writing.

Where the structure is of multi-storey construction, props with head trees and braces shall be provided to distribute the imposed load below the floor being cast. This will normally be 3 -storey heights below the floor being cast unless otherwise stated.

5.5.0 FINISH TO CONCRETE SHUTTERED SURFACES

5.5.1 Sawn Finish

The shuttering shall consist of saw boards, sheet metal or other suitable material to give a support to the concrete. Appearance is not of primary importance for this class of formwork. It shall be used for surfaces against which backfill or further concrete is to be placed. The treatment of the shuttering or concrete to provide a board for the further surface treatment of the concrete shall be directed or approved by the Architect. Masonry or similar material used for facing concrete shall only be used as shuttering where directed by the Architect.

The Architect's approval shall be obtained to the use of blocks or slabs when used as permanent forms in foundations and other similar locations.

5.5.2 Wrought Finish

The shuttering shall be wrought with boards arranged in a uniform pattern. Alternatively, plywood, metal panels, or other approved materials may be used, subject to the Architect's approval. Joints between boards or panels shall be horizontal or vertical unless otherwise directed. This shuttering shall give a good finish to the concrete and will normally be used for all faces where a high class finish is not necessary.

5.5.3 **Fair-faced Finishing**

Standard steel panels, hardwood and boarding will not be permitted for the face of this shuttering. The shuttering shall be faced with resin-bonded plywood, faced with matt finished plastic or equivalent material in large sheets which shall be arranged in an approved uniform pattern. Wherever possible, joints between sheets shall be arranged to coincide with features such as sills, heads, jambs or changes in direction or the surface areas of formwork between features in walls, between beams in horizontal surfaces or other or similar arrangement, shall where possible be divided into panels of uniform dimensions, without the use of make-up pieces. All joints between panels on vertical or inclined surfaces shall be vertical or horizontal unless otherwise directed by the Architect; those on horizontal surfaces shall be at right angles and wherever possible they shall be parallel to walls and beams. The shuttering shall give a high class finish to the concrete with no lips, fins, or irregularities, and shall give a completely true and even surface which will be prominently exposed to view where good alignment is of special importance. It is for use in both in-situ and precast concrete.

5.5.4 **Textured Finish**

This is an all-over finish of high quality as may be directed by the Architect. Sample panels may be constructed on site prior to commencement of the works, to compare different textures. The shuttering shall be such that the concrete finish has no lips, fins or irregularities and shall give a surface, which will be prominently exposed to view where good appearance and alignment are of special importance.

5.5.5 **Chisel Dressed Finish**

This finish consists of cutting a maximum of 10 mm of concrete surfaces to expose the aggregate. This work is to be carried out after the concrete is at least 30 days old and is to be executed by hand. Mechanical means will not be permitted.

5.5.6 **Other Finishes**

Where other finishes, apart from the above are specified, the Contractor provide a sample panel at least 2.4 m x 1.2 m in vertical surface area including a typical horizontal and vertical joint in the shuttering. The sample panel shall be constructed using the systems of shuttering and the construction techniques that the Contractor proposes for the actual works. This sample when approved will form the standard for the entire works. All unsuccessful samples shall be removed from the site.

5.5.7 **Floor Finishes**

“Tamped Finish”

Where “tamped finish” is specified, it will be obtained by an edge board to the Architect’s approval. Board works 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.

5.6.0 CONCRETE MIXES, GENERALLY

5.6.1 Work Cubes

For all structural concrete, the following representative sample shall be taken and in accordance with B.S. 1881:-

One each day on which less than 50 cu.m. of concrete is being poured.

- a) Six 150 mm cubes - three for test 7 days and three for test 28 days; and
- b) Two slump tests; or
- c) Two compacting factor tests

On any day when greater quantities of concrete are being poured then six additional cube tests and two additional slump or compacting factor tests shall be carried out for each 50 cu.m. or part thereof.

All cubes shall be marked with the date of casting and a reference number. For each cube a record shall be kept of the position in which the batch of concrete from which it was sampled was placed. All cubes shall be tested by an approved testing authority.

The concrete cubes tested at 7 days are intended to be indicative only and the target works strengths at 7 days given in Table I or II are not mandatory. It should be noted however that it is unlikely that cubes failing the 7 days target will subsequently pass the 28 days cube strength.

The concrete cubes tested at 28 days shall be taken to represent the concrete placed in the works. The standard of acceptance for cube strength tests shall be as follows:-

The cube strength shall be calculated from the maximum load sustained by the cube failure. One test result shall be the average of two test specimens taken from the same sample. The appropriate strength requirement, as given in Table I or II shall be considered to be satisfactory if:

- a) None of the strengths of the three cubes is below the specified cube strength, or if,
- b) The average strength of three cubes is not less than the specified cube strength and the difference between the greatest and the least strengths is not more than 20% (percent) of that average.

The standard of acceptance of the slump test during the production of concrete shall be the design slump \pm 25 mm.

The standard of acceptance for the compacting factor test during the production of concrete shall be design compactor factor \pm 0.03.

Any concrete which fails to meet the above standard of acceptance shall be either further tested or condemned at the Architect's sole discretion. Any such tests or the removal of condemned concrete, replacement and associated costs shall be at the Contractor's expense.

If the strengths required are not attained or maintained throughout the contract, the Contractor will also be required to redesign the mix and submit trial mixes in accordance with the specification so as to give a concrete which does comply with the requirements of this specification.

5.6.2 Concrete Mixes, Nominal Mixes

Mixes for each class of concrete specified or shown on the drawings shall be used by the Contractor. They shall be mixed to achieve high density combined with adequate workability for the purpose.

Details of any proposed mix shall be forwarded to the Architect not less than 7 days before that class of concrete is required to be used on the works for his approval in principle.

Classes of concrete will be referred to by their nominal mix proportions. Classes of concrete shall meet the criteria shown in Table I.

The workability of the concrete shall be the minimum consistent with producing a dense, well compacted mass. Due regard shall be paid to the size and shape of the section together with any congestion of reinforcement..

5.6.3 Concrete Mixes, Design Mixes

Mixes for each class of concrete specified or shown on the drawings shall be designed by the Contractor to achieve the specified minimum cube strength combined with high density and adequate workability for the purpose.

In order to allow for unavoidable variation, the mean design strength should exceed the specified works cube strength by twice the expected standard deviation. In the absence of previous information, a standard deviation of $7N/MM^2$ should be assumed.

Details of any proposed mix design shall be forwarded to the Architect not less than 7 days before that class of concrete is required to be used on the works for his approval in principle. The details shall include at least the following information:-

- a) Source, nature and grading of coarse and fine aggregates.
- b) Source of cement.
- c) Nominal maximum size of aggregate.
- d) Cement content
- e) Aggregate/cement ratio
- f) Water/cement ratio
- g) Design density
- h) Design slump or compacting factor
- i) Design strength

Classes of concrete will be referred to by the minimum 28 days work strength and the maximum size of aggregate. Classes of concrete shall meet the criteria shown on Table II. The maximum water/cement ratio is herein defined as the ratio of the weight of the “free” water available to the weight of the cement. The “free water” is that quantity of water available to combine with the cement. Any required to be absorbed by aggregate is excluded.

The workability of the concrete shall be the minimum consistent with producing a dense well compacted mass. Due regard shall be paid to the size and shape of the section together with any congestion of reinforcement.

After the Architect has approved a design mix in principle, the Contractor shall prepare a trial mix on site using plant and materials intended for the works. Three batches of concrete shall be sampled and the following prepared, from each batch in accordance with B.S. 1881:

- a) Nine 150 mm cubes, three for test at 7 days, three for test at 14 days and three for test at 28 days; and
- b) Three slump tests, or where the design slump is less than 25 mm; and
- c) Three compacting factor tests.

The standard of acceptance of preliminary tests will be similar to the standard for normal cubes, slump or compacting factor, except that the minimum cube strengths required shall be those given under “minimum preliminary cube strength at 28 days” in Table I and II.

No structural concrete shall be placed in the works until the Architect has approved preliminary tests. Thereafter the approved mix proportions shall be adhered to, throughout the work and may only be varied with the prior approval of the Architect.

(Concrete Mixes (Generally) (ctd))

TABLE 1: PRE SCRIBED WORKMANSHIP CONCRETE MIXES

Class of Concrete	Minimum work Cube strength Of 28 days N/MM2	Cement Kg.	Fine Aggregate Cubic Metres	Coarse Aggregate Cubic Metres	Minimum Preliminary Cube Strengthen at 28 days N/MM2	Minimum Target Works Cube strength at 7 days N/MM2
1:1:2	30	50	0.035	0.07	40	22
1:1:5:3	25	50	0.05	0.10	40	19
1:2:4	20	50	0.07	0.14	28	14

TABLE 1: PRESCRIBED WORKMANSHIP CONCRETE MIXES

Class of Concrete	Minimum work Cube strength Of 28 days N/MM2	Maximum size of Aggregate MM	Minimum Cement Content KG/M3	Maximum Water Cement Ratio	Maximum Cement Content KG/M3	Minimum Preliminary Cube Strength at 28 days	Minimum Target Works Cube Strength at 7 days N/NN2
40	40	20	350	0.44	540	40	30
30/40	30	40	300	0.46	540	40	22
30/20	30	20	310	0.46	540	40	22
30/10	30	10	340	0.46	540	40	22
25/40	25	40	280	0.53	540	33	19
25/20	25	20	295	0.53	540	33	19
25/10	25	10	325	0.53	540	33	19
20/40	20	40	260	0.60	540	28	14
20/20	20	20	280	0.60	540	28	14

5.6.4 Tolerance

All in-situ concrete shall be dimensionally accurate to within the following non-accumulative tolerances:-

- a) Between the centre lines of principal member columns or beams+/- 5mm
- b) Up to 5 metre centres+/- 5mm
- c) Over 15 metre centres +/- 5mm
(Note:- The +/- 5mm is floor to floor).
- d) In storey height+/- 5mm floor to floor.
- e) In plumpness of columns and walls ...+/- 10 mm on any storey or overall the structure.
- f) In level of floors+/- 5 mm/ - 3 mm of the true prescribed horizontal surface level.
- g) In cross sectional dimensions of column, beams and walls +/- 5 mm/ - 3 mm
- h) In any dimensions up to 2 metres overall +/- 10 mm/ - 3 mm
- i) Cover to reinforcement..... + 5 mm/ - 0 of the stated covers.

5.6.5 Miscellaneous Items

Holes, chases, indentations and the like shall be provided where indicated on the drawings. All such shall be formed in the concrete and not cut after concrete has hardened.

Should the Contractor or any Sub-contractor require additional holes of the like, these requirements shall be submitted to the Architect at least two days prior to concreting, for his approval.

Pipes, conduits, fixing bolts and other such cast-in items shall be provided where indicated on the drawings.

Should the Contractor or any Sub- contractor require additional cast-in items, these requirements shall be submitted to the Architect at least two days prior to concreting, for this approval.

5.6.6 Ready Mixed Concrete

Ready Mixed Concrete shall be used only with the approval of the Architect. When such approval is given, it shall be supplied in accordance with B.S. 5328, except where this conflicts with this specification, wherein this specification shall prevail.

Truck mixer units and their mixing and discharge performance shall comply with the requirement of B.S. 4251.

The use of ready mixed concrete shall not relieve the Contractor of any of his obligations, and the appropriate clauses of this specification shall apply equally to the ready mixed concrete.

Concrete test cubes and slump tests shall be taken on site at the point and time of discharge in accordance with this specification irrespective of any cubes that the supplier may take at his own risk.

5.7.0 MIXING AND TRANSPORTING CONCRETE

All materials for concrete shall be measured by weight in approved weight batching equipment. Such equipment shall be checked at weekly intervals at the Contractor's expense and shall be accurate to within 2%. Certificates of accuracy shall be submitted immediately to the Architect.

- a) All concrete shall be mixed in approved power driven mixers of a type and capacity suitable for the work. The mixer shall be equipped with an accurate water measuring device which shall be checked at weekly intervals at the Contractor's expense. Certificates of accuracy shall be submitted immediately to the Architect.

All materials shall be thoroughly mixed dry before water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water is added or such longer periods as recommended by the manufacturer of the mixer. The mixture shall be of uniform colour and distribution on discharge and the entire contents of the mixer shall be discharged before recharging. The volume of mixed material shall not exceed the rated capacity of the mixer.

The Mixer shall at all times be kept in a clean condition. Prior to the first mix each day being agitated in the mixer, a rich cement:sand mix shall be used to coat the inside of the drum, the surplus material being emptied away and not used in the works.

The moisture contents of the coarse and fine aggregate shall be checked by the Contractor at frequent intervals and the amount of water added to the mix adjusted to maintain the design workability.

Concrete shall be discharged from the mixer onto a clean, level, watertight platform or into a clean watertight container. It shall be transported in a manner which ensures that it is of the correct quality and consistency at the point of deposition. All platforms and containers shall be cleaned of the old concrete before the fresh concrete is discharged onto them.

Concrete shall not be dropped from a height, thrown or otherwise treated so that segregation, undesirable finish or defective structural quality results. In any case concrete shall not be dropped from a height greater than 3.0 m.

No extra water shall be added to the concrete mix after it has left the mixer.

The Contractor shall take adequate precautions to protect concrete in transit from the effects of the weather.

Pumping of concrete, which will require a special design mix, will only be permitted with the approval of the Architect.

Should the concreting be stopped due to mechanical malfunction, accident or other similar cause, then the Contractor shall inform the Architect immediately so that necessary measures and precautions can be taken. The cost of any additional work caused by these stoppages shall be the responsibility of the Contractor.

No concreting shall be commenced until the formwork and reinforcement have been inspected by the Architect. The Contractor shall give the Architect two clear days' notice of his intention to concrete.

5.8.0 PLACING AND COMPACTING CONCRETE

All concrete shall be vibrated unless otherwise specified. The vibration shall be carried out by experienced operators and with immersion type vibrations to the Architect's satisfaction.

Placing of concrete shall be carried out in layers not exceeding 500 mm deep and in sequence from one end of the form to the other.

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

Any concrete which shows signs of initial setting before or during placing shall not be used and it shall be removed at the Contractor's expense.

Sufficient vibrators shall be provided to correspond with the rate of deposition of concrete. The vibrators shall be continuous throughout the placing of the concrete. Standby vibrators shall be on site during all concrete placing.

Vibration must not be allowed to disturb any recently placed concrete that has begun to set. Any water accumulating on the surface of newly placed concrete shall be removed by approved means and no further concrete shall be placed thereon until such water is removed.

Suitable means shall be provided to ensure that the temperature of the concrete on placing does not exceed 30 deg.C (86 deg.F). All surfaces shall be thoroughly dampened immediately prior to placing fresh concrete to prevent excessive absorption of water.

5.9.0 UNIFORMED FINISHES FOR CONCRETE

Where concrete surface is specified as suitable for receiving a further applied finish or in all cases where no other finish is specified, the concrete shall be uniformly leveled and screeded to produce a rigid surface. No further work shall be applied to the surface.

Where a concrete surface is specified as exposed with no further applied finish, the concrete shall be uniformly leveled screeded to produce a plain surface. After the concrete has hardened sufficiently, the surface shall be hand or machine floated sufficiently only to produce a uniform surface free from screed marks.

5.10.0 CONSTRUCTION, CONTRACTION AND EXPANSION JOINTS

Construction joints will be permitted only at the positions shown on the drawings and as instructed on the site by the Architect. These joints will in general be spaced to allow a maximum plan area for any bay of 100 sq.m. and maximum length of 12 m in any one dimension.

Vertical construction joints shall be properly made to form a vertical grout tight joint. Where reinforcement passes through the face of the joint, the stopping off board shall be drilled so that the bars pass through or the board shall be made in sections with half round indentation in the joint.

Under no circumstances shall concrete, when being deposited, be allowed to 'tail off'. Construction joints formed with expanded metal or similar will not be permitted for reinforced concrete work.

At all construction joints, both horizontal and vertical the surface of the already placed concrete shall be suitably roughened to remove latency and by exposing the coarse aggregate to form a key for adjacent concrete. This work shall be carried out to the satisfaction of the Architect by the following or other approved methods:-

- a) After the initial set has taken place but before final set, the coarse aggregate shall be exposed by the use of a water jet brushing.
- b) After final set has taken place, the latency shall be removed and coarse aggregate shall be exposed by brush hammering or chiseling.

In both cases the surface is to be thoroughly cleaned after roughening.

At least 72 hours shall elapse between completion of concreting one bay and the start of concreting any adjacent bay if the Architect deems fit.

Construction joints shall be formed as detailed where shown on the drawings.

Expansion joints shall be formed as detailed at the position on the drawings.

5.11.0 CURING AND PROTECTING CONCRETE

Immediately after compacting and for 7 days thereafter, concrete shall be protected against harmful effects of the weather including rain, rapid temperature changes and from drying out. The methods of protection used shall be subject to the approval of the Architect. The method of curing used shall prevent loss of moisture from the concrete.

During the curing period, horizontal surfaces shall be protected by the following or other approved means:-

- a) Covering with damp hessian canvas sacks or similar absorbent materials kept constantly damp and wholly covering the exposed concrete surface or
- b) Covering with an impermeable material raised approximately 50 mm over the surface so as to prevent loss of moisture.

- c) An approved membrane curing compound.

During the curing period, other surfaces shall be protected by the following or other approved means:-

- a) Formwork in close application of water, preferably in the form of a mist so as not to damage the surface.
- b) Direct and continuous application of water, preferably in the form of a mist so as not to damage the surface.

All concrete faces or edges, particularly those which are exposed without rendering in the final structure, shall be adequately protected from damage and discolouration at all times.

Concrete structures shall NOT be loaded until the concrete is at least 21 days old or 28 days in the case of cantilevers. With the prior approval of the Architect the structure may be loaded before this time but in no case will loading be greater than the final design loading be permitted.

5.12.0 TEST FOR DEFECTIVE CONCRETE

Additional tests may be necessary when there are physical defects in the finished concrete. These defects may be in the form of cracking while the member is still under props, excessive deflection or segregation and insufficient strength of concrete test cubes. If in the opinion of the Architect these defects are as a result of the Contractor's bad workmanship, then the contractor will be required to carry out additional tests which the Architect may deem necessary to establish the load carrying capacity of the member. All costs for the test or incurred thereof as a consequence of the test shall be chargeable to the Contractor. Costs for tests shall be borne by the Contractor immaterial of the outcome of such tests.

5.13.0 CONCRETE FOR WATER RETAINING STRUCTURES

Concrete, and its constituents for water retaining structures, in addition to the general and particular provisions in this specification, shall comply with the following requirements in this section:-

In addition to the requirement of the following clauses, concrete in water retaining structures shall have a low drying shrinkage and absorption, as measured in accordance with B.S. 812 or not greater than 3%.

The Architect may, before approval is given to an aggregate or at any time thereafter require, that the aggregate be tested for absorption in accordance with B.S. 812. Any aggregate failing to comply with this specification will be rejected.

In addition to the requirements of this specification, concrete for the water retaining structures shall have maximum cement content of 400 kg/M³.

Blinding concrete under water retaining structures shall be a minimum of 75 mm thick and shall be in class 15/40 concrete.

Class 15/40 concrete shall comply with the following requirements:-

- a) Minimum works cube strength at 28 days 15/N/mm²
- b) Maximum size of aggregate 40 mm
- c) Mix proportions 1 cement : 2.5 fine aggregate
: 5 coarse aggregate

This is nominal mix and no cubes will be required to be taken.

The construction joints will, in general be spaced to allow a maximum plan area for any bay of 40 sq.m. or maximum lengths of 7.5 m in any one dimension.

A waterproofing additive - “plastocrete DM” by Sika or other similar and approved shall be used for all reinforced concrete in water tank structures.

All additives shall be incorporated into the mix according to the manufacturer’s instructions.

At least 96 hours shall be left between completion of concreting any adjacent bay if the Architect deems fit.

A kicker of minimum height 150 mm shall be cast integrally with the base slab for all water retaining structures.

The surface of all concrete for water retaining structures shall not be permitted to dry out even after the 7 day curing period specified in this specification.

All pipes passing through concrete walls or slabs for water retaining structures shall be cast in at the time of concreting and not subsequently fitted. All such pipes shall be provided with puddle flanges fitted to form a seal against the pipe and of an outside diameter of 2.00 m greater than the outside diameter of the pipes.

Joint sealants shall be applied not less than 7 days after completion of the structure.

On completion of water retaining structures at a time decided by the Architect, it shall be tested for water tightness in the following manner:-

- a) Structures which are elevated shall be filled at a uniform rate not exceeding 1 meter rise in head per 24 hours and allowed to absorb water for 3 days. After this period the water level shall be brought up to the top water level and left for 7 days. During this period the exposed faces shall show no signs of leakage and shall remain apparently dry.
- b) Structures founded on or in the ground shall be tested prior to backfilling unless otherwise stated. The structure shall be filled as specified above. After filling to top water level, no structure will be deemed to be watertight if at the expiration of this time the total 100 mm after making due allowance for evaporation and absorption and no signs of leakage are observed.

Water for testing shall be provided at the Contractor’s expense.

If the structure fails the test above, any defects shall be made good or such action taken to eliminate leakages, as the Architect shall direct. All such work shall be at the Contractor's expense.

After completion of any repairs, the structure shall be tested using the procedure specified above.

Swimming pools should be tested prior to applying internal finishes.

5.14.0 PRECAST CONCRETE

The materials for precast work shall be similar to the materials for in-situ work. The workmanship for precast work shall comply with C.P. 116 except where this conflicts with this specification when the specification shall prevail.

The Contractor shall prepare for any type of precast units, a drawing indicating his proposed formwork construction, casing method, de-moulding and handling procedure for the Architect's approval.

Moulds and formwork shall be so constructed that the dimensions of the finished concrete members are within the specified permissible tolerances given in Clause 407 of B.S. 8110.

Where precast concrete is described as "Fair Faced", the moulds shall be metal, or are to have metal or hard board linings, or are to be other approved moulds which will produce a smooth, dense fair face to the finished concrete and free from all shutter marks, holes, pitting, etc.

Precast concrete shall be of the mixes described on the drawings in suitable mould, true in form of the shapes require, thoroughly tamped into the moulds and around reinforcement and vibrated.

All precast concrete work shall be carried out under cover and the period before removal from forms and the period of storing shall be determined and agreed by the Architect and the Contractor with due regard to the type of unit, i.e. load bearing or non-load bearing, difficulties of casing, projections, holes and other points which require particular attention.

The method of lifting, position of lifting points and curing time before lifting shall be agreed with the Architect before casting of any units.

Extreme care shall be taken when handling precast units and any units damaged during transportation and/or positioning shall be replaced at the Contractor's expense.

5.15.0 MEASUREMENT PREAMBLES

Concrete work shall be measured generally in accordance with the method of measurement stated in the contract. The rates shall be deemed to include for complying with the specification in all respects. All testing and samples required by the specification, whether covered by a particular item below or not, shall be deemed to be included within the rates or sums in the Bills of Quantities. Where the Architect

may instruct the Contractor to test (such test not being mandatory), the materials or workmanship in accordance with the provisions of the specifications, the test of such costs will be borne by the Employer, if the test result proves unsatisfactory. In either case no consequential costs or delay will be allowed, it being considered that testing covered by this specification is being of a usual or expected nature.

The rate for concrete shall include for all costs associated with the following:-

- a) Supply concrete of the required strength, manufactured with materials complying with the specification.
- b) Mixing, transporting, placing, compacting, curing and protecting the concrete all as specified.
- c) Forming construction joints and complying with the specified requirements for maximum bay size and intervals between casting adjacent bays.
- d) Providing test certificates for cement and aggregates.
- e) Designing the concrete mix (where applicable) and carrying out trial mixes and preliminary tests.
- f) Carrying out routine sampling and testing of concrete and its constituents.

5.15.1 Mass concrete

The rate for mass concrete in blinding shall, in addition to B. (a) to B. (f) above, include, for concreting the sub-base.

The rate for mass concrete shall, in addition to B. (a) to B. (f) above, include for any formwork necessary unless otherwise stated in the item description.

5.15.2 Rod Reinforcement

The rate for rod reinforcement shall include all costs associated with the following:-

- a) Supply rod reinforcement complying with the specifications.
- b) Providing test certificates
- c) Cutting, bending and fixing reinforcement including any welding were this is approved.
- d) Providing and fixing all spacers, tying wire, chairs and stools.

5.15.3 Fabric Reinforcement

The rate for rod reinforcement shall include all costs associated with the following:-

- a) Supplying fabric reinforcement complying with the specifications.
- b) Providing test certificates

- c) Cutting and fixing fabric reinforcement
- d) Providing and fixing all spacers, tying wire, chairs and stools.
- e) Providing the specified laps, fabric will be measured as the net plan area.

5.15.4 Sawn Formwork

The rate for rod reinforcement shall include all the costs associated with the following:-

- a) Supplying, fixing, easing and striking all temporary forms as specified together with all temporary construction required for their support.
- b) Supplying details or calculations for formwork.
- c) Coating with material to prevent adhesion to the concrete.
- d) Complying with specified minimum periods before removal of forms.
- e) Back propping for multi-storey construction.

5.15.5 Wrought Formwork

The rate for wrought formwork shall include for all costs associated with the following:-

- a) Supplying, fixing, easing and striking all temporary forms as specified together with all temporary construction required for their support.
- b) Supplying details or calculations for formwork.
- c) Coating with material to prevent adhesion to the concrete.
- d) Complying with specified minimum periods before removal of forms.
- e) Back propping for multi-storey construction.
- f) Providing sample panels of concrete as specified and removing on completion of the works.

5.15.6 Precast Concrete

The rate of precast concrete shall include for all costs associated with the following:-

- a) Supplying concrete including items on the above clauses.
- b) Supplying rod reinforcement including ditto.
- c) Supplying fabric reinforcement (if applicable) including ditto.
- d) Supplying, fixing, easing and striking moulds and formwork as specified including replacement after multiple use.
- e) Producing drawings and details as specified.

- g) Coating moulds with materials to prevent adhesion to the concrete.
- h) Complying with specified minimum periods before removal of forms.
- i) All handling, lifting and fixing of precast units.

5.15.7 Composite Floor Construction

The rate for composite floor construction is to include for all moulds, materials and all unspecified items necessary for the manufacture of hollow concrete blocks by the Contractor.

Another rate will be applicable in the event of the Contractor purchasing the block as specified from independent suppliers or manufacturers.

5.15.8 Waffle Floor Construction

The rate for waffle floor construction is to include for all moulds, materials and all items necessary for complying with the specification. The rate shall also be deemed to include for solid concrete margins and bearings.

6.0 STRUCTURAL STEEL WORK

6.0 **STRUCTURAL STEEL WORK**

6.1.0 **QUALITY OF MATERIALS AND WORKMANSHIP**

The quality of all materials and workmanship used in the execution of this Contract shall comply with the requirements of the most recent issues of the following British Standards and Codes of Practice, including all amendments to date of calling for Tenders.

- a) BS.4 (Part 1) - Hot Rolled Sections
- b) BS.4 (Part 2) - Hot Rolled Hollow Sections
- c) BS.449 - The use of Structural Steel in building.
- d) BS.638 - Arc Welding Plant, Equipment and Accessories.
- e) BS.639 - Covered Electrodes for the Manual Metal Arc Welding of Mild Steel and Medium Tensile Steel
- f) BS.916 - Black Bolts, Screws and Nuts
- g) BS.1449 - Steel plate, sheet and strip
- h) BS.1775 - Steel Tubes for Mechanical, Structural and General Engineering purposes.
- i) BS.2994 - Cold Rolled Steel Sections
- j) BS.4190 - IPSO Metric black hexagon bolts, screws and nuts
- k) BS.4320 - Metal washers for general engineering purposes
- l) BS.4360 - Weldable structural steel
- m) BS.4848 - Hot rolled structural steel sections
- n) BS.4872 - Approval testing of welders when welding procedure approval is not required
- o) BS.5153 - General requirement for the Metal Arc welding of structural steel
- p) BS.5493 - Protection of iron and steel structures from corrosion

The Architect may at any time require any materials to be tested in accordance with the requirements of the standards listed above. The cost of all successful tests shall be borne by the client, but the contractor/sub-contractor shall if required promptly supply at his own expense, test pieces as required by the architect. The costs of tests on materials failing to comply with this standard shall be borne by the contractor/sub-

contractor. If in the opinion of the architect, faulty materials and/or workmanship have been used in the works, the contractor/sub-contractor may be directed to dismantle and cut out the parts concerned and remove them for examination and testing. The cost of dismantling, cutting out and making good to the approval of the architect shall be born by the contractor/sub-contractor.

6.2.0 FABRICATION

6.2.1 Cutting and Bending

All members, plates, brackets, etc. shall be neatly and accurately sheared, sawn or profiled to the required shape as shown on the drawings. Where steel is oxy-cut to shape, care shall be taken to preserve the full finished sizes required. If the members of plates are bent or set, the bends or sets shall be correctly made to the radii or angles specified without leaving hammer marks. The material may be heated to permit this. Materials that have been heated shall be annealed to approval.

6.2.2 Punching and Drilling

Holes for black bolts shall be drilled or punched 2 mm larger in diameter than the bolt used. Holes for high tensile friction grip bolts shall be drilled or sub-punched and reamed to 2 mm larger in diameter than the specified bolt sizes. All drilled holes shall be parallel sided and shall be drilled with the axis of the holes perpendicular to the surface. Badly drilled holes shall either be reamed out to approval and larger bolts fitted or otherwise as directed. All rough arises shall be ground off.

Holes for bolts in material thicker than 15 mm must be drilled. When holes are drilled in one operation through two or more thicknesses of material, the parts shall be separated after drilling and all burrs removed before assembly. Holes for bolts shall not be formed by a gas cutting process.

6.2.3 Tolerances

All members shall be fabricated with a tolerance in length of +0mm and – 3mm, all not deviate from straightness by more than 1 in 400.

The allowance for angular twist shall be $(3+0.6L)$ mm where L is the length of the member under consideration in metres. Twist shall be measured by placing the member as fabricated against a flat surface measuring the difference between the two corners of the opposite end.

The above tolerances shall be adhered to unless otherwise specified on the Architect's drawing.

6.3.0 FASTENING

6.3.1 Bolting

All bolts used shall be of such length that at least one full thread is exposed beyond the nut after the nut has been tightened. Where a nut or bolthead

would bear on an inclined surface, a bevelled washer of the correct shape shall be interposed between the two surfaces. Bevelled washers shall not be allowed to get out of position during fabrication and erection and for this purpose may be spot welded to the steel surface. Bevelled washers for use with high tensile bolts may not be welded.

6.3.2 Black Bolts, Nuts and Washers

All black Bolts, Nuts and Washers shall comply with the requirement of BS.916 or alternatively BS. 4190 IPSO metric black hexagonal bolts screws and nuts.

6.3.3 High Tensile Bolts, Nuts and Washers, Friction Grip Bolts

All high tensile steel bolts, nuts and washers used in joints shall comply with the requirement of BS.3139 and shall be used in accordance with BS.3294.

6.4.0 ELECTRICAL WELDING

All welding shall be carried out in strict accordance with the requirement of BS.1856 and 938 and electrodes shall comply with BS.639.

Fusion faces shall be free from irregularities such as tears, fins, etc which would interfere with the deposition of weld metal.

Fusion faces shall be smooth and uniform and shall be free from loose scale, slag, rust, grease, paint, and/or other deleterious material.

All welds shall be of acceptable types, shall be of the finished sizes specified, and shall be carried out in such sequence that minimum distortion of the parts welded results.

Preparation of edges for welding shall be carried out by planing or machine flame cutting. Manual flame cutting may be permitted in certain circumstances.

Parts to be welded shall be maintained in their correct relative positions during welding, preferably by jigs.

Multiple run welds shall be carried out with each run closely following the previous run but allowing sufficient time for the proper removal of slag.

The contractor/sub-contractor shall ensure that each run is inspected and any unsatisfactory weld cut out and re-made to approval.

Welds in material 25 mm or greater in thickness shall be made by the Argon arc or similar and approved process, and special precautions shall be taken to prevent weld cracking.

Unless otherwise shown, the minimum size of fillet shall be 6 mm.

On completion, welds shall present a smooth and regular finish. Weld metal should be solid throughout with complete fusion between weld metal and parent metal and between successive runs throughout the joint.

Defects shall be cut out and made good to approval in sound weld metal.

The external faces of butt welds are to be ground smooth on completion and to be to the approval of the Architect.

6.5.0 SHOP AND FIELD CONNECTIONS

6.5.1 Rolled Sections

All shop connections shall be electric welded or bolted with high tensile friction grip bolts.

No bolts used shall be less than 12 mm diameter and no weld shall be less than 40 mm in length. At least two bolts shall be used in connections transmitting loads unless otherwise indicated by the Architect.

No weld of length less than four times the nominal fillet size shall be deemed capable of carrying a load.

Beam to column connections not detailed shall be on “Standard” top and bottom cleat connections with the load carried on the bottom cleat. “Standard” web connections shall be used for connecting beams to beams.

Field connections shall be as detailed, i.e. bolted with high tensile or black bolts in drilled holes. Black bolts in punched holes will only be permitted for connections carrying a designed load or for connections to timber members.

6.5.2 Structural Hollow Sections - Circular and Rectangular

Hollow Sections shall be connected by electric welding unless shown otherwise.

The design of welds shall be in accordance with Clause 53 and 54 and Appendix C of BS. 449.

Butt welds shall be made with the fusion surfaces of the ends of each member properly aligned.

6.6.0 ASSEMBLY

6.6.1 Trusses and Portal Frames

Trusses shall be carefully set out to the dimensions shown on the drawings.

Where it is required the trusses be cambered, such camber shall be provided by bending the bottom chord to the arc of a circle.

Notwithstanding any dimensions spacing of purlin cleats, the contractor/sub-contractor shall ensure that purlin cleat spacing is satisfactory

for the available stock lengths of roof sheeting. However, the architect's approval must first be obtained before any alteration is made in purlin spacing or sheeting sizes.

Splices in portal and other frames shall be made where shown on the details or where indicated.

6.6.2 Boxed Members

Abutting edges of boxed members shall be connected and scaled with a continuous weld to exclude the entrance of moisture. Where specified, such welds shall be ground flush to approval.

6.6.3 Shop Assembly

Such assembly of units in the shop as is specified or necessary before transporting to the site will be inspected by the architect before painting. The work will be laid out in the shop or yard so that all parts are accessible for inspection and testing of the work.

The contractor/sub-contractor shall furnish all facilities for inspection and testing for the work and he must notify the architect on each occasion when the material is ready for inspection.

6.6.4 Marking

All members of the structure to be site assembled shall be match marked in accordance with the shop details and marking plans submitted for approval.

6.7.0 ERECTION

6.7.1 Site Dimensions

No erection shall commence before accurate Site Dimensions have been taken by the contractor/sub-contractor, and no claim will be considered should final dimensions differ from those on the drawings. Any modifications to the structural steel required in order to comply with Site Dimensions shall be made on the ground to the architect's approval before erection is commenced.

6.7.2 General Setting-Out Tolerances

The Temporary Bench Mark (TBM) which shall be located at the Structural Ground Floor Level (S.G.F.L.) having been agreed on site between the architect and the contractor, shall be considered as the site datum.

The datum points for the setting out of the datum lines passing through TBM at all floor and roof levels shall be: +/-Om.

The Permissible Deviation from the TBM and DL shall be as follows:-

- a) Setting out on Plant at S.G.F.L.

All setting out dimensions with respect to each datum line (i.e. P.D. from “x” and “y” plan axes) = +/- 10 mm/30 metres.

- b) Transfer of TBM to Structural First Floor, intermediate floor and roof levels

With respect to the TBM at S.G.F.L., the TBM at:

First Floor Level - +/- 5 mm

Intermediate Floor Levels - +/- 10 mm

Roof Level - +/- 15 mm

- b) Setting out on plan or upper floors with respect to the transferred TBM.

All setting out of dimensions with respect of each datum lines = +/- 10 mm / 30 metres.

- c) The clear distance between adjacent elements at any level where accuracy is required for doors, windows, services, secondary steelwork etc.
- d) The P.D. with respect to the relevant TBM of the upper or lower surface of any truss or element, taking into account specified cambers:
- e) The Plumb vertical members: = + 10 mm / storey.

6.7.3 Equipment

All erection shall be carried out by competent and experienced men and the contractor/sub-contractor shall take every care to safeguard the public, workmen and adjoining property.

All gear used shall be of adequate strength and shall comply with all regulations current at the time.

The contractor/sub-contractor shall be held responsible for all damage caused to the structure, workmen, or buildings during erection.

6.7.4 Storing and Handling

Steel shall be stored and handled and erected in such a manner that no member is subjected to excessive stresses which could have an adverse effect on the properties of the steel. If in the opinion of the architect, the steel work has been subjected to such treatment, the contractor shall remove this steel from the site and replace it at his own expense.

6.7.5 Erection Details.

No member or part of a member which has been bent or distorted shall be erected in that condition. All straightening shall be done in the ground.

Columns shall be wedged to line and level on steel or cast iron wedges and checked by the Architect. After acceptance, column bases shall be grouted to approval before wedges are removed. Unless shown on the drawing, all columns shall be left truly vertical and correct to line and level. Beams, girts, etc. shall be erected level unless otherwise shown, and correctly positioned.

Trusses and open web joists shall be carefully handled at all times and when being erected shall be lifted at such points and in such manner as will preclude any possibility of damage from erection stresses.

Immediately after erection, each truss shall be made secure by purlins, bracing or guys to approval.

Bracing shall be placed in position as soon as dependent work will permit.

6.7.6 Field Connections

In making connections, drifting of unfair holes will not be permitted and holes not matching properly shall either be reamed or drilled out and a larger bolt inserted or otherwise as directed.

Holes formed or enlarged by oxy-cutting will be condemned and must be filled to approval by electric welding and red drilled.

Tightening and testing High Tensile Friction Grip Bolts:-

- a) Before assembly, the contact surface, including those adjacent to the washers, shall be de-scaled or carry normal tight mill scale. They shall be free from dirt, oil, loose scale, burrs, paint (except priming paint) pits and other defects that would prevent solid seating of the parts.
- b) Bolts shall be assembled with approved hardened flat or tapered washers as required between the bolthead and nut and the softer mild steel.
- c) When bearing faces of the bolted parts have a slope of more than 1 in 20 with respect to a plane normal to the bolt axis, square smooth bevelled washers shall be used to compensate for the lack of parallelism.

- d) All bolts shall be tightened by the “Turn of Nut” method. This method shall generally be as approved by the architect to achieve in all bolts a minimum tension equal to the proof load.

6.7.7 Grouting

Unless otherwise detailed on the drawings, a space of not less than twenty (20) mm and not more than forty (40) mm shall be provided between undersides of column baseplates and footings, and between all beam and roof truss bearings and concrete pads, etc.

After each column, beam, or roof truss has been wedged up to a line and level and fixed in position to approval, the space between footing or pad and the underside of the baseplates or steel member shall be grouted with a mixture of portland cement and approved washed sand.

The Portland Cement and sand shall be thoroughly mixed to approval in equal proportions by volume with only sufficient water to produce a mixture of “damp earth” consistency and shall be used within twenty minutes of mixing. The caulking mixture shall be packed to approval into the space between baseplate and foundation and protected from damage until set.

6.8.0 PAINTING

6.8.1 Painting Material

All paints are to be supplied by a supplier approved in writing by the architect.

Paints are to be delivered to the site in the original containers as supplied by the manufacturer with seals unbroken and are to be used in strict accordance with the manufacturer’s instructions. Manufacturer’s representatives are to be free to visit the site and inspect materials and workmanship, and if necessary take samples of materials for laboratory analysis.

Paints are not to be thinned unless instructed by the architect.

No external painting is to be carried out during rain or when rain is likely to occur before the paint has had time to dry. All surfaces are to be dry and free from moisture at the time of painting.

6.8.2 Preparation for Painting

All structural steel shall be thoroughly scraped and wire brushed to remove mill scale and rust. Dirt and grease or oil shall be washed off with white spirit and the steel allowed to dry.

6.8.3 Painting Process

A first coat of Red Oxide Zinc Chromate primer shall be applied in the works immediately the steel preparation has been completed. A minimum of 24 hours shall elapse before the steel is moved from its position whilst painting

has been carried out. After delivery to site, the steel shall be carefully examined and all areas where the priming coat has been damaged and/or where rust has developed shall be washed with white spirit and wire brushed as necessary and a further priming coat as for the first applied to completely cover the damaged areas.

During erection, surfaces of steel which are to be in contact shall be painted with one further coat of primer as previously described and the surfaces brought together whilst the paint is still wet.

Bolts, Nuts, Washers, etc. shall after erection is completed to approval, be carefully de-greased with white spirit and painted as for steelwork.

Steel purlins and sheeting rails shall generally be painted as for steelwork except for purlins and rails supporting aluminium sheeting when the following specifications shall be used:-

- a) 1st coat - Red Oxide Zinc Chromate Primer
- b) 2nd Coat - An approved Aluminium paint

The interior of mild steel gutters shall be prepared as previously described for structural steelwork.

7.0 WALLING

7.0 STANDARDS AND CODES OF PRACTICE

Requirements of the following British Standards and Codes of Practice and equivalent Uganda Bureau of Standards shall be observed:-

7.1.1 British Standards

- | | | |
|----|-------------------------|--|
| a) | B.S. 3921 part 2 | Bricks and blocks of fired brickwork clay |
| b) | B.S. 1180 | Concrete bricks and fixing bricks |
| c) | B.S. 4729 | Shapes and dimensions of special bricks |
| d) | B.S. 2028, 1364 type B | Precast concrete blocks (for general use and load bearing walls above damp proof course) |
| e) | B.S. 2028, 1364 type C | Precast concrete blocks (for internal non-load bearing walls) |
| f) | B.S. 1200 table 1 and 2 | Sand for mortar for plain and reinforced brickwork, block walling and masonry. |
| g) | B.S. 890 part 2 | Building limes (Hydrated Lime) |
| h) | B.S. 4721 | Ready mixed lime: sand for mortar |
| i) | B.S. 4551 | Methods of testing mortars and specifications for mortar mixing sand |
| j) | B.S. 743 | Materials for damp proof courses. |
| k) | B.S. 1178 | Milled sheet lead and strip for building purposes |
| l) | B.S. 1243 Fig. | Metal ties for cavity wall construction (vertical twist type) |
| m) | C.P. 111 | Structural recommendations for load bearing walls. |
| n) | C.P. 121 part 1 | Walling |
| o) | C.P. 122, 202 part 1 | Masonry – rubble walls |
| p) | C.P. 122 | Walls and partitions of blocks and slabs |
| e) | NOTE: | The contractor’s attention is drawn to Section “G” of the Standard Method of Measurements. |
| f) | WATER: | Shall be as specified in “concrete work” |

7.2.0 GENERAL

7.2.1 Samples and sample panels

Samples of all types of blocks, bricks and stone required for the works shall be produced to the architect for his prior written approval before any orders are placed. After approval of samples, the contractor shall erect 1200 mm x 1200 mm sample panels as required by the architect. No work shall be commenced until written approval has been given to sample panels, which shall be maintained for the duration of the work to which the sample applies. Any work inferior to approved samples shall be taken down and removed if required by the architect. The cost of providing samples and sample panels shall be deemed to be included in the contract sum.

7.2.2 Pricing

Rates for walling are to include for reinforcement strips.

Labours on stone walling stated in the Standard Method of Measurement as to be included shall be deemed to include for redressing the beds of stone on site to the minimum extent necessary to obtain uniformity of coursing and for any redressing of faces necessary to bring the thickness within the tolerance specified.

Rates for walling of any description are to include for all expenses in connection with the provision and conveyance of samples of walling materials to the Kenyan Ministry of Works, Materials Testing Laboratory, Nairobi.

7.3.0 MATERIALS

7.3.1 Cement

Cement shall be as described in Concrete Work.

7.3.2 Aggregate

Fine aggregate or sand for concrete blocks shall be as described in Concrete Work.

Coarse aggregate or ballast for concrete blocks shall be good, hard, clean aggregate from approved quarries. It shall be free from all decomposed materials and shall be graded up to 10 mm and all as described for coarse aggregate or ballast in Concrete Work.

7.3.3 Limes

Hydrated limes for cement/lime mortar shall comply with K.S. 02-97 semi-hydraulic or non-hydraulic calcium limes. Lime for lime/sand mortar shall comply with K.S. 02-97 and shall be hydraulic.

7.3.4 Sand for mortar

Sand for mortar shall comply with B.S. 1200.

7.3.5 Concrete blocks

Concrete blocks for walling shall comply with B.S. 6073 part 1, solid or hollow two-hole type as specified, and made in approved block making machines, under cover, of a composition as follows:-

- a) Portland cement 1 M³
- b) Fine aggregate (graded up to 5 mm) 3 M³
- c) Course aggregate (graded up to 10 mm) 6 M³

The compressive strength of non load bearing blocks shall be not less than:-

- d) Average 10 blocks 3.5 N/sq mm, gross area
- e) Lowest individual block 2.8 N/sq mm, gross area

When load bearing, the compressive strength of blocks shall be:-

- f) Average of 10 blocks 7.0 N/sq mm, gross area
- g) Lowest individual block 5.6 N/sq mm, gross area

All testing shall be in accordance with B.S. 2028.

Newly made blocks shall be carefully deposited on racks under sheds and then left for three days and kept thoroughly wet the whole time, after which they shall be put out in the open on racks and protected with approved matting, sacking or straw and kept wet for a further five days, then kept in the same position and under same mat cover, but without wetting, for a further seven days to season.

Blocks to be subsequently covered with an in-situ finishing may be slightly rough in texture. Fair-face blocks shall be perfectly smooth.

7.3.6 **Precast concrete louvre or screen blocks**

Precast concrete louvre or screen blocks shall comply in all respects with the specification for precast items contained in the “Concrete Work” specification and shall be constructed to the dimensions and form shown in the drawings.

7.3.7 **Stone**

Stone shall be sound and hard and free from all defects and shall be obtained from a quarry approved by the architect.

All stone required for walling (unless otherwise described), shall be chisel dressed into true rectangular blocks with each surface even and at right angles to all adjoining surfaces. Ordinary walling shall be built in 190 mm courses, and of the thicknesses given herein with all dimensions having a tolerance of plus or minus 6 mm. At least 80% of all stone blocks shall be not less than 500 mm in length and no block will be allowed to be cut or redressed after it is built into the work.

7.3.8 **Damp-Proof course**

Bituminous felt sheeting for damp-proof courses shall be three-ply heavy duty hessian based felt in accordance with B.S. 743 Ref. "A" weighing not less than 3.8 kgs per square metre. The sheeting is to be lapped 150 mm at running joints and the full width of walls at angles.

7.4.0 WORKMANSHIP

7.4.1 Storage of materials

- | | | |
|----|------------------------|---|
| a) | Cement, sand and limes | As described in concrete work. |
| b) | Blocks and bricks | Open stacked to permit ventilation and protection from the sun, rain and rising damp. |

7.4.2 Wetting blocks, bricks and stone

Blocks bricks and stone shall be wetted as necessary before and after laying. Walls shall be kept wet for three days after building.

7.4.3 Bonding Walls

The blocks shall be properly bonded together and in such a manner that no vertical joint in any one course shall be within 115 mm of a similar joint in the course immediately above or below. Sufficient through-bonders shall be provided. Alternate courses of walling at all angles and intersections shall be carried through the full thickness of the adjoining walls. All walling shall be built up entirely solid in blocks, without voids, allowance being made for only 10 mm thick joints. All perpend, reveals and other angles of the walling shall be built strictly true and square.

7.4.4 Generally

The contractor shall provide all setting out rods.

Walling shall not be built on concrete foundations until at least four days after casting.

All blockwork and brickwork shall be built uniform, true and level, with all perpend vertical and in line. No work shall rise more than 1 metre above adjoining work and all such risings are to be properly raked back in long steps to prevent cracks. Risings and all walls shall be leveled around at each floor.

Joints generally are not to exceed 10 mm in thickness. Cutting of blockworks against concrete soffits, etc. shall include for cutting to give normal 10 mm joints and complete filling thereof with mortar.

All walls built in hollow concrete blocks, where finishing with an open top edge, (i.e. not against ceiling, beams, etc) or at the underside of cills, shall be finished with a solid concrete block top course.

Openings for wooden doors, frames, windows, hatches, ventilators, etc. are to be set out and left unbuilt until the wooden frames have been fixed in position.

Openings for metal frames are to be wide enough for the frames to fit without being forced into position. Lugs shall be built into joints and the

space between walling and frame filled with cement mortar well tamped into the channel of the frames and pointed all round.

7.4.5 Wall reinforcement

Where walls or partitions are constructed of blocks of stones less than 150 mm thick, they shall be reinforced with a 25 mm wide strip of 2 mm thick hoop iron built into alternate horizontal joints in the wall centre. The hoop iron shall be lapped and hooked at running joints, angles and intersections and carried at least 115 mm into abutting walls and junctions.

7.4.6 Mortar mixing

The constituent materials shall be measured separately when dry in specially prepared gauge boxes of sizes to give the proportions specified without consolidation of the contents by ramming and shaking. The mortar shall be mixed in an approved power driven mixer for not less than two minutes per batch and using the minimum quantity of water necessary to obtain a working consistency. The mixer shall be used as close as practicable to the works and mortar shall be used within 30 minutes of mixing. Partially or wholly set mortar shall not be used or re-mixed.

7.4.7 Bedding and pointing

All blocks shall be bedded on a solid bed of mortar; vertical faces of block shall be well buttered before being laid and the whole well grouted at each course. Joints of blockwork to be plastered shall be roughly raked out to form a key. Joints of air face blockwork shall be either finished flush or finished recessed 6 mm as specified.

7.4.8 Stone Walling

Stones are to be selected for size and colour and dressed on face to match existing and neatly bonded in. The stones are to be bedded in cement mortar and pointed with a neat recessed joint and upon completion the faces are to be well washed down and wire brushed.

7.4.9 Fair-face work

Walling of any material required to be fair-faced shall be of selected materials, uniform, and even in appearance with joints neatly executed as specified.

7.4.10 Holes and chases

Where walling is cut, holed or chased for conduits, pipes or the like, all such chases shall be filled in solid with cement mortar mix (1:4) prior to the application of finishes. In no case shall a vertical chase be deeper than one third the thickness of the wall and in no case shall a horizontal chase be deeper than one sixth of the thickness of the wall.

Putlog holes shall be not less than one course deep, afterwards filled with a block cut neatly fit.

8.0 ASPHALT WORK

8.0 ASPHALT WORK

8.1.0 STANDARD AND CODES OF PRACTICE

The requirements of the following British Standards shall be observed:-

8.1.1 British Standards

- | | | |
|----|-------------------------------|---|
| a) | B.S. 1162, 1410 and 1418 | Mastic asphalt for tanking and damp-proof courses (Natural rock asphalt aggregate) |
| b) | B.S. 988, 1097, 1076 and 1451 | Mastic asphalt for tanking and damp course (limestone aggregate) |
| c) | C.P. 102 | Protection of building against water from ground. |
| d) | NOTE: | The contractor's attention is drawn to Section "j" of the Standard Method of Measurement. |

All asphalt shall comply with the requirements of subsections B.S. 1418 and 1097 and C.P. 102 specifically dealing with tanking operations.

8.2.0 MASTIC ASPHALT FOR TANKING

The contractor shall arrange for the work to be executed by an approved sub-contractor. No other sub-contractor will then be permitted to be employed without the written authority of the architect.

Tropicalised mastic asphalt is to comply with B.S. 1097/1966 and B.S. 1418 applied in three coats, in the case of horizontal work on and including sheathing felt; in the case of vertical work without sheathing felt. The third and final coat is to have a polished finish. All tanking operations to comply with C.P. 102.

The contractor is to take all necessary precautions to protect finished work, and it is his responsibility to ensure that no damage occurs to surfaces during subsequent building operations or any reasons whatsoever.

For tanking to basements, lay over the whole area of the basement concrete floor, a horizontal damp proof course in three thicknesses laid with 150 mm laps to one course of foundation walling on outer face of wall with a vertical damp proof course with a double angle fillet.

Vertical faces of basement walls shall then be covered with a damp proof course applied in three thicknesses with 75 mm laps to a total thickness of not less than 20 mm.

Vertical damp-proof courses shall be carried up to a minimum height of 150 mm above ground level and connected at bottom to horizontal damp-proof coursed-in walls with double fillet formed on top of foundations to form a complete tank to basement.

All junctions between horizontal and vertical asphalt shall be warmed, cleaned and properly made good with two-coat angle fillets at all internal angles.

Properly made good joints between lining pits and horizontal damp proof courses to floor shall be effected and double angle fillets to all internal angles maintained.

It is essential that continuity of tanking be maintained. Care must be exercised to ensure that such continuity is not destroyed by stanchions, pits, sumps, etc.

Protect asphalt by the application of loading coats immediately each section of work is complete. Pumping of any water gaining access shall be continued until not only the asphalt work is complete, but also until loading coats are thoroughly set.

If the water level is near, such water level shall be maintained at not less than 0.3 m below the level of the base concrete during the progress of tanking work to avoid the application of asphalt on wet surfaces and this pumping operation shall be maintained until the temporary sump has been filled and sealed.

9.0 ROOFING

9.0 **ROOFING**

9.1.0 **ROOFING SHEETS PRE-PAINTED MILD STEEL/G.C.I. SHEETING**

9.1.1 **Generally**

Pre-painted corrugated mild steel sheeting shall be No. 24 Gauge of best quality in accordance with B.S. 3038, and shall conform to Uganda Bureau of Standards.

9.1.2 **Laps**

Sheets shall be laid with 150 mm end laps and side laps of 30 mm corrugations on the side away from the prevailing wind.

9.1.3 **Fixing of steel and timber**

The sheets shall be fixed to mild steel angle purlins with 6 mm diameter pre-painted mild steel hook bolts 50 mm longer in the shank than the depth of the steel purlins to which they are fixed each with one diamond shaped bitumen washer, one, pre-painted steel washer, and one pre-painted steel nut. The sheets shall be fixed to timber purlins by using 14 gauge drive screw with bituminous felt washer backed by cranked diamond shaped aluminium washer.

9.1.4 **Holes**

Holes for bolts or screws shall be punched from the inside of the sheet and through the ridges of corrugations NOT in the hollows. A clearance of 0.80 mm on the bolt or screw must be allowed.

9.1.5 **Ridges, Valleys, Flashings**

The ridges, valleys, flashings etc. shall be formed of No. 24 gauge pre-painted mild steel sheeting of a quality equal to the sheeting on each side at 450 mm centres maximum with 6 mm diameter seam bolts 20 mm long each with one diamond shaped bitumen washer, one pre-painted steel washer and one pre-painted steel nut.

Ridges and valleys shall not be less than 375 mm girth.

9.1.6 **Bolts and Screws**

All fixing bolts and screws shall comply with B.S. 1494.

9.1.7 **Square Abutments**

At the square abutments, the last two corrugated of the corrugated iron sheets next to wall shall be flattened and turned up against wall and covered with 24 gauge pre-painted sheet iron apron flashing.

9.1.8 Bat Proofing

Bat proofing shall consist of “Perspex” or other equal and approved translucent plastic corrugated sheetings.

9.2.0 TILED ROOFING

9.2.1 Concrete single-pin tiles and fittings

Concrete single-pin tiles and fittings shall comply to B.S. 473 and 550: Part 2 group B. Tiles are to be 381 x 229 mm nominal unless otherwise specified.

9.2.2 Concrete single-pin tiles and fittings

Surface coating, when specified must be firmly bonded. A full range of fittings are available from the manufacturer and must match the tiles with which they are laid.

9.2.3 Mangalore Tiles

Mangalore tiles where specified, shall be interlocking clay tiles as manufactured by M/s Clayworks Ltd. or other equal and approved. They shall be uniform in size, shape and colour, hard, well burnt and free from defect.

They shall be laid in accordance with the manufacturer’s printed instructions.

9.2.4 Polythene Underlay

Polythene shall conform to B.S. 3012: 500 gauge and of approved manufacture.

9.2.5 Nails for underlay

Nails for underlay shall comply to B.S. 1202: Part 1.

9.2.6 Tying Wire

Tying Wire shall comply to B.S. 443, 1.6 mm diameter (16 S.W.G.) iron wire.

10.0 CARPENTRY

10.0 CARPENTRY

10.1.0 STANDARDS AND CODES OF PRACTICE

The requirements of the following British Standards and Codes of Practice shall be observed:-

10.1.1 British Standards

- | | | |
|----|------------------|--|
| a) | B.S. 565 | Glossary of items relating to timber and woodwork |
| b) | B.S. 1860 part 1 | Structural timber. Measurements of characteristics affecting strength (softwood) |
| c) | B.S. 4471 | Dimensions for softwood |
| d) | B.S. 373 | Methods of testing small clear specimens of timber. |
| e) | B.S. 1202 part 1 | Nails |
| f) | B.S. 1579 | Connectors for timber |
| g) | B.S. 4169 | Glued laminated structural members |
| h) | B.S. 916 | Black bolts |

10.1.2 Codes of Practice

- | | | |
|----|--------------|---|
| a) | C.P. 112 | The structural use of timber |
| b) | C.P. 98 | Preservative treatment for construction timber. |
| c) | NOTE: | The contractor's attention is drawn to Section "L" of the Standard Method of Measurement. |

10.2.0 DEFINITIONS

10.2.1 Selected

The term 'selected' shall be deemed to include keeping the material so described clean for staining, polishing, or any similar finish.

10.2.2 Hardwood or the like

The term 'hardwood or the like' which is used as a statement to which ironmongery is to be fixed, shall be deemed to include plywood and other manufactured materials, except when faced with metal, laminated plastics or the like.

10.3.0 MATERIALS

10.3.1 Terminology

All technical terms shall be as defined in the Glossary of Terms used in Timber Standards, KS. 02 1976 and, where applicable, the British Standard Code of Practice No. 112.

10.3.2 Timber Generally

Timber shall be sound, well conditioned, properly seasoned, containing not more than 15% moisture for joinery work or 18% moisture for carpentry work, and complying with the following performance specification:-

10.3.3 Performance Specifications

These specifications refer to all conifer (soft-wood) and broad leaved (hard-wood) species and apply to timber sections incorporated in the building after they have had a sufficient time to season. The period required for green timber to season fully after installation under cover shall be assumed to be one month for each 25 mm thickness.

Unless noted elsewhere, timber shall conform to the listed specifications as follows:-

a)	F	Grade	Furniture and high class joinery
b)	GJ	Grade	General joinery
c)	S75	Grade	Structural grade having grade stress value of 75% of basic stress.
d)	S50	Grade	Structural grade having grade stress value of 50% of basic stress.
e)	C	Grade	A general construction grade for non-stressed construction.
f)	L	Grade	A low grade for low quality work.

Defects shall not exceed those specified in Tables, 1, 2, & 3 of KS 02-17.

10.4.0 GENERAL

All timber used for carpentry shall be sound, well conditioned, properly seasoned to suit particular use and free from defects or combination of defects rendering it unsuitable for the purpose intended.

Timber used for carpentry shall be in accordance with the latest approved Grading Rules issued by the Government of Kenya (Legal Notice No. 358). Timber used structurally shall comply with the requirements of the Export Grading rules made under the Export of Timber Act (Kenya), Second or Select Grade, and also with B.S. 1860.

The following timber shall be used:-

- a) Cypress
- b) Podocarpus (podocarpus spp)
- c) Cedar (Junipers Procera)
- d) Elgon Olive

All timber shall be free of live borer, beetle or other insect attack when brought upon on site. The contractor shall be responsible, to the end of maintenance period, for executing at his own cost, all the work necessary to eradicate insect attack of timber attacked or suspected to be attacked, notwithstanding that the timber concerned may have already been inspected and passed as fit for use.

Timber shall be seasoned to a moisture content of not more than 18%.

All carpentry timbers shall be treated with pressure impregnated "Celcure" or "Tenalith" solution with a minimum wet retention of 5.46 kg of dry salt per m³. If so required "charge sheets" issued after treatment with "Celcure" or "Tenalith" shall be submitted by the contractor to the architect for his retention. All out ends and other cut faces or timbers sawn after treatment shall be treated before fixing with "Celcure B" or "wolmanol" solution brushed on.

The contractor's rates for such timber hereinafter must allow for the above treatment.

All grounds shall be podocarpus or other light and approved hardwood.

Nails shall comply with the relevant standard as above.

Black bolts shall comply with B.S. 916.

Rag bolts, coach screws and others shall comply with B.S. 1494.

Where used externally, nails and screws shall be sherardized.

Timber shall be delivered early to the site, stored under cover clear of the ground and protected from the sun and dampness.

The architect shall be given facilities and reserves the right for inspection of all works in progress whether in workshop or on site. The contractor is to allow for testing of pro-types of special construction units and the architect shall be at liberty to select any samples he may require for the purpose of testing i.e. for moisture content or identification, species, strength, etc.

The contractor is to clear out and destroy or remove all cut ends, shavings and other wood waste from all parts of the building and the site generally, as the work proceeds and at conclusions of the work.

The clearance, destruction and removal is to prevent accidental borer infestation and to discourage termites and decay.

All carpentry work shall be accurately set out in strict accordance with the Drawings and shall be framed together and securely fixed in the best possible manner with properly made joints. All brads, nails and screws, etc. shall be provided as directed and approved and the rates shall be deemed to allow for these.

Carpentry work shall be left with sawn faces except where specified to be wrot.

All timber shall be as long as possible in length in order to minimize joints. Where joints are unavoidable, surfaces shall be in contact over the whole area of the joint before fastenings are applied.

No nails, screws and bolts are to be fixed in any split end. If splitting is likely, or is encountered in the course of work, holes for nails are to be prepared at diameters not exceeding $4/5^{\text{th}}$ of the diameter of the nails. Clenched 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 and are to be of the diameter $D/16$ where D is the diameter of the bolt. Nuts must be brought up tight but care must be taken to avoid crushing of the timber under washers.

11.0 JOINERY

11.0 JOINERY

11.1.0 STANDARD AND CODES OF PRACTICE

The requirements of the following British Standards and codes of Practice shall be observed:-

11.1.1 British Standards

a)	B.S.	565	Glossary of terms relating to timber and woodwork.
b)	B.S.	4471	Dimensions for softwood
c)	B.S.	1186 Part 1+2	Quality of timber and workmanship in joinery
d)	B.S.	373	Methods of testing small clear specimen of timber
e)	B.S.	4512	Methods of test for clear plywood
f)	B.S.	1142 part 3	Fibre building board (Insulation board softwood)
g)	B.S.	3444	Blockboard and laminated board
h)	B.S.	1445	Plywood manufactured from tropical hardwoods
i)	B.S.	3794	Decorative laminated plastic sheets
j)	B.S.	459 part 2	Flush doors
k)	B.S.	459 part 3	Fire check flush doors and wood and metal frame (1.5 hour and 1 hour types)
l)	B.S.	1567	Wood door frame and linings
m)	B.S.	584	Wood trims (softwood architrave skirtings, quadrants, etc)
n)	B.S.	1204 parts 1+2	Synthetic resin adhesive (phenolic and type MR-Moisture amino plastic) for wood Resistant Type INT - Interior
o)	B.S.	1210	Wood screws
p)	B.S.	1494 part 2	Fixing accessories for building purposes (bolts, screws, staples, etc)
q)	B.S.	4174	Felt tapping screws and metallic drive screws.

11.1.2 Codes of Practice

- a) C.P. 201 Timber flooring
- b) C.P. 201 parts 1+2 Flooring of wood and wood products
- c) C.P. 151 Doors and windows including frames and linings
- d) **NOTE:** The contractor's attention is drawn to Section "M" of the Standard Method of Measurements.

11.2.0 DEFINITIONS

11.2.1 Selected

The term "selected" shall be deemed to include keeping the material so described clean for staining, polishing, or any similar finish.

11.2.2 Hardwood or the like

The term "hardwood or the like" which is used as a statement to which ironmongery is to be fixed, shall be deemed to include plywood and other manufactured materials, except when faced with metal, laminated plastics or the like.

11.3.0 MATERIALS

11.3.1 Terminology

All technical terms shall be as defined in the Glossary of Terms used in Timber Standards, KS 02 1976 and, where applicable, the British Standard Code of Practice No. 112.

11.3.2 Timber Generally

Timber shall be sound, well conditioned, properly seasoned, containing not more than 15% moisture for joinery work or 18% moisture for carpentry work, and complying with the following performance specification:-

11.3.3 Performance Specifications

These specifications refer to all conifer (soft-wood) and broad leaved (hardwood) species and apply to timber sections incorporated in the building after they have had a sufficient time to season. The period required for green timber to season fully after installation under cover shall be assumed to be one month for each 25 mm thickness.

Unless noted elsewhere, timber shall conform to the listed specifications as follows:-

- a) F Grade Furniture and high class joinery
- b) GJ Grade General joinery
- c) S75 Grade Structural grade having grade stress value of 75% of basic stress.
- d) S50 Grade Structural grade having grade stress value of 50% of basic stress.

e)	C	Grade	A general construction grade for non-stressed construction.
f)	L	Grade	A low grade for low quality work.

Defects shall not exceed those specified in Tables, 1, 2 & 3 of KS 02-17.

11.4.0 **WORKMANSHIP**

The timber for joinery shall be as specified in the Export Timber Ordinance of 1951 and obtained from an approved sawmill. All such timber shall be Prime Grade and reasonably straight, grained and shall be purchased immediately the contract is signed. It shall be open stacked on site for such further seasoning as may be required.

Timber which in the opinion of the architect does not satisfy the specification in character or condition or is not suitable for the requirements of the work because of the blemishes it contains shall not be used.

The following timber shall be used:-

- a) Podocarpus
- b) Mvule
- c) Cedar
- d) Elgon Olive
- e) Elgon Teak
- f) Camphor
- g) Mahogany
- h) Meru Oak
- i) Pamba Coffee
- j) Nkalati

All timber shall be wrot by machine dressings. Non-exposed faces and machine marks shall be removed with hand plane and sanded out, unless otherwise specified.

The dimensions and thickness stated in the Bills of Quantities are the finished sizes (unless otherwise stated) and the contractor will allow for all necessary waste.

The joinery shall be worked strictly in accordance with drawings, and is to be framed up and put together as soon as possible and stored in the drying room, for as long as possible before being wedged up. All joints and angles are to be glued and where necessary cross tongued with hardwood tongues and surfaces finished clean and smooth, with machine marks sand-papered out before fixing.

Should any of the joinery work shrink, warp, wind or deflect unduly before the end of the maintenance period of the contract, the work is to be taken down and rectified at the contractor's sole expense.

Tolerance in thickness shall conform with the following extracts from the Government of Kenya Grading Rules:-

Hardwood Grading: (First and Second Grades):-

- a) 1.6 mm over size on pieces up to 25 mm in thickness
- b) 3 mm oversize on pieces over 25 mm and up to 51 mm in thickness
- c) 6 mm over size on pieces over 51 mm in thickness; undersize will not be permitted.
- d) Softwood Grading: Appearance Grades (First and Second Grades); undersize will not be allowed.
- e) Oversize: All timber to be sawn oversize by 1.6 mm per 25 mm of thickness and width. Not more than 3 mm in thickness and not more than 6 mm in width.

Seasoning of timber shall be to moisture content of not more than 15%.

Pressure impregnation treatment shall be as for "Carpentry".

Where joinery is described as screwed, this is deemed to include sinking the head of the screw and pelling with similar timber, and to grain in with the finished joinery.

All hardwood joinery shall be finished for oil paint/varnish, unless otherwise stated.

The rates shall be deemed to allow for all nails and screws and fixing, all labour, cuttings, notching, halving, morticing, tenoning and wedges except where otherwise provided.

All work described as plugged shall be fixed with screws to plugs formed by drilling concrete walls, etc., with the proper tool of suitable size at 750 mm spacing and filling the holes completely with "philplug" rawl plastic or rawl plugs in accordance with the manufacturer's instructions. Alternatively and where so agreed by the architect, hardwood dovetailed fixing slips in preservative and cut and primed or bedded in cement mortar (1:3) may be used.

The rates are to allow for all surfaces of joinery where in contact with walling or plaster, or where otherwise unexpected being treated before fixing with two coats of approved wood preservative.

Laminated plastic sheeting shall be "formica" manufactured by M/s Thomas de la Rue and Co. or equal and approved, 1.6 mm thick and accurately fixed with approved type water-proof impact adhesive and in the colours selected by the architect.

Blockboard shall comply with the standard as mentioned above.

Plywood shall comply with the standard as mentioned above and faced both sides unless otherwise stated.

Fibreboard shall be 12.7 “Celotex” or other equal approved softboard.

All joinery work shall be accurately set out and framed together soon after commencement of the building as is practicable but not to be wedged up or glued until the building is ready for fixing the same. Any portions that warp, wind or dent shall be removed and new ones fixed in their place together with other work which may be affected thereby all at the contractor’s expense.

All work shall be properly morticed, tenoned, housed, shouldered, dovetailed, notched, primed, bradded, etc. as directed and to the satisfaction of the architect and all glued up with the best quality glue.

Joints in joinery shall be as specified or detailed, and so designed and secured as to resist or compensate for any stresses to which they may be subjected. All nail strings, etc. are to be punched and puttied. Loose joints are to be where provisions for shrinkage is necessary; glued joints where shrinkage need not be considered and where conditions may be damp must be of the resin type. For non-load-bearing joints or where dry conditions may be guaranteed resin or organic glues may be used. All exposed surfaces for joinery shall be wrot and all arises “cased off” by planing and sand papered to an approved finish suitable to the specified treatment.

3 mm reduction of specified sizes will be allowed to each wrot face except in members 25 mm thick or less or where, described as finished sizes in which case joinery shall hold up the full dimensions.

In fixing all beads, fillets and small members shall be fixed with round or oval brads or nails well punched in and stopped. All large members shall be fixed with screws. Brass screws shall be used for fixing of all hardwoods, to the heads in and pellated over with wood pellets to match the grain.

Rates shall include for bedding frames, cills, etc in mortar or dressing surfaces of walls, etc in lieu.

Round wood plugs shall not be used, and screws or plugs shall be spaced at 750 mm centres.

All fixed joinery which in the opinion of the architect is liable to become bruised or damaged in any way shall be completely cased and protected by the contractor at his own expense until completion of works.

Bottom edges of doors shall be painted or polished with two coats of approved primer before fixing.

11.5.0 **PARTICULAR SPECIFICATIONS**

11.5.1 **Chipboard**

Chipboard shall comply with B.S. 5669.

11.5.2 **Blockboard**

Blockboard shall be approved imported or local manufacture complying in all aspects with B.S.1142 of the thickness specified and softwood faced both sides unless otherwise described. Samples of blockboard veneered with hardwood as specified, shall be submitted to the Architect for his approval before any orders are placed.

11.5.3 Fibreboard

Fibreboard shall be “Celotex”, or other equal and approved make, 12mm thick and complying in all aspects with the requirements of B.S. 1142.

11.5.4 Hardboard

Hardboard shall be tempered and of approved manufacture, in accordance with B.S.1142, suitable for painting, prepared and fixed in accordance with the makers’ instructions.

11.5.5 Medium Density Fibreboard (MDF)

MDF shall be used wherever possible in place of blockboard or chipboard. The MDF used shall be to the thickness specified, shall be flat, smooth, straight, without any imperfections, surface distortion, broken or chipped edges. MDF used in damp locations (i.e. toilets) shall be moisture resistant MDF.

11.5.6 Laminated Plastic Sheeting

Laminated plastic sheeting shall be 1.5mm “Formica” or other approved sheeting complying with B.S.3794 Class 1, in colours to be selected by the Architect.

Prior to fixing laminated sheeting, the Contractor shall obtain the Architect’s written approval to a sample.

11.5.7 Pressure Impregnated Treatment

All timber so described is to be vacuum pressure impregnated with “Celcure A” preservative to a dry salt nett retention of 10.5 kg “Celcure A” per cubic metre of timber and stacked until the moisture content returns to 18% or 15% as above described. Timber to be treated shall be machined to finished sections and cut to component lengths before impregnation. Cut ends, notchings, borings and faces of timber sawn after treatment are to be swabbed literally on cross cut ends with “Walmanol” end grain preservative, allowed to dry, and then applied in a similar manner a second time.

12.0

IRON MONGERY

12.0 IRON MONGERY

12.1.0 STANDARDS AND CODES OF PRACTICE

12.1.1 British Standards

- a) B.S. 1227 part 1 A Hinges
- b) B.S. 2028 Performance test for locks
- c) B.S. 2911 Letter plates
- d) B.S. 4112 Performance requirements for hardware for domestic furniture
- e) NOTE: The contractor's attention is drawn to Section "M" of the Standard Method of Measurement

12.2.0 MATERIALS AND WORKMANSHIP

All locks and ironmongery shall be fixed with screws, etc to match. Before woodwork is painted, handles shall be removed, carefully stored and re-fixed after completion of painting and locks oiled and left in perfect working order.

All keys shall be labelled with the door reference on labels before handing to the architect on completion. All ironmongery shall be carefully protected until completion of the work and any damage is to be made good at the contractor's expense.

Rates shall allow for easing and adjusting all doors, etc and for lubricating all locks, hinges, etc. and left in perfect working order.

Where descriptions fixing ironmongery include catalogue numbers, such items shall be obtained from the specified manufacturers if at all possible.

Rates shall include for labelling all keys with door references as directed by the architect.

All keys shall be provided with two keys and no keys are to pass the ward of any but its own.

13.0 METAL WORK

13.0 METALWORK

13.1.0 STANDARDS AND CODES OF PRACTICE

The requirements of the following British Standards and Codes of Practice shall be observed:-

13.1.1 British Standards

- | | | |
|----|--------------------|--|
| a) | B.S. 4 part 1 | Structural steel, hot rolled screws |
| b) | B.S. 4 part 2 | Structural steel, hot rolled hollow sections. |
| c) | B.S. 325 | Black cup and countersunk bolts and nuts. |
| d) | B.S. 916 | Black bolts screws and nuts. |
| e) | B.S. 4174 | Self tapping screws and metallic drive screws. |
| f) | B.S. 405 | Metal washers for general engineering purposes. |
| g) | 1161 and addendum | Aluminium and aluminium alloy sections for general engineering purposes. |
| h) | B.S. 938 | Metal ore welding of structural steel tubes. |
| i) | B.S. 1856 | Metal ore welding of mild steel. |
| j) | B.S. 729 part 1 | Hot dip galvanized coating iron and steel articles. |
| k) | B.S. 1474 | Wrot aluminium and aluminium alloy |
| l) | B.S. 990 parts 1+2 | Steel windows (domestic and similar buildings) |

13.1.2 Codes of Practice

- | | | |
|----|-----------|---|
| a) | C.P. 499 | Metal railings and balustrades. |
| b) | C.P. 117 | Composite construction in structural steel and concrete. |
| c) | C.P. 2008 | Protection of iron and steel structures from corrosion. |
| d) | C.P. 3012 | Cleaning and preparation of metal surfaces. |
| e) | NOTE: | The contractor's attention is drawn to Section "P" of the Standard Method of Measurement. |

13.2.0 MATERIALS AND WORKMANSHIP

Iron and steel where galvanised shall comply with the requirements of B.S. 729, part 1 entirely coated with fine fabrication by complete immersion in a zinc bath in one operation and all excess carefully removed.

The finished surfaces shall be clean and uniform.

All work in aluminium shall comply with the requirements of the standard mentioned above.

All smiting and bending shall be soundly and neatly executed, care being taken not to overheat.

All strap bolts and similar work shall be forged neat and clean from the anvil.

All welded connections shall be ground to a smooth finish and rates shall be deemed to allow for this.

Steel windows shall comply with the requirements of the standard mentioned above and shall be fixed in accordance with the manufacturer's instructions.

All mild steel except galvanised shall be cleaned of rust and scale, painted one coat red lead priming paint before delivering to site and the rates shall include for this.

14.0 FLOOR, WALL AND CEILING FINISHES

14.0 FLOOR, WALL AND CEILING FINISHES

16.1.0 STANDARDS AND CODES OF PRACTICE

The requirements of the following British Standards and Codes of Practice shall be observed.

British Standards

- | | | |
|----|-----------------------------|--|
| a) | B.S. 1191 Part 1
Class B | Gypsum building plaster (excluding premixed light weight plasters) |
| b) | B.S. 1193 | Standard for internal plastering with gypsum plasters. |
| c) | B.S. 1199 Table 1 | Sands for external renderings, internal plastering with lime and Portland Cement, and floor screeds. |
| d) | B.S. 1201 | Aggregate for granolithic concrete floor finishes. |
| e) | B.S. 1281 | Glazed ceramic tiles and tile fittings for internal walls. |
| f) | B.S. 1369 | Metal lathing (steel for plastering) |
| g) | B.S. 890 Class A | Building limes |
| h) | B.S. 1187 | Wood block for floors |
| i) | NOTE: | The Contractor's attention is drawn to Section "S" of the Standard Method of Measurement. |
| j) | C.P. 211 | Internal plastering |
| k) | C.P. 221 | External rendered finishes |
| l) | C.P. 204 | In-situ floor finishes |
| m) | C.P. 202 | Tile flooring and slab flooring |
| n) | C.P. 203 | Sheet and tile flooring (cock, linoleum, plastics and rubber) |
| o) | C.P. 212 part 1+2 | Wall tiling |
| p) | C.P. 209 | Care and maintenance of floor surfaces |

14.2.0 MATERIALS AND WORKMANSHIP

14.2.1 Cement

Cement shall be described in “Concrete”

14.2.2 Sand

Sand shall comply with the requirements of the Standards mentioned earlier.

14.3.0 LIME

Lime shall be non-hydraulic lime to satisfy the Standards mentioned above. It shall be obtained from an approved source. It must be freshly burnt and shall be slaked at least one month before using by drenching with water, well broken up and mixed and the wet mixture shall be passed through a sieve of 10 meshes to the square centimeter. Lime putty shall consist of freshly slaked lime as described above saturated with water until semi-fluid and passed through a fine sieve, it shall then be allowed to stand until superfluous water has evaporated and it has become of consistency of thick paste, in no case for shorter period of one month before being used during which it must be kept damp and clean and no portion of it allowed to become dry.

Alternatively, hydrated lime with 70% average calcium oxide content may be used and it must be protected from damp until required for use. It shall be soaked to a putty at least 24 hours before use.

14.3.0 CONCRETE BED OF SLABS

All concrete beds and slabs shall be thoroughly brushed clean, hatched if necessary and well wetted and flushed over with a cement and sand (1:1) grout immediately before screeds or paving are laid .

Screeds and cement paving shall be laid in accordance with the relevant British Standards and/or Codes of Practice and in alternate bays generally not exceeding 3.0m during any period of working hours with neat joints and shall be damp cured with sand or sawdust and kept damp for at least 7 days after laying.

As bays are formed batten strips must be used to retain the exposed edge of the screed.

Thicknesses and mixes of screeds are adjusted to suite the various top dressing and the Contractor must first ascertain what finish is intended to each specific area before the work of the laying screeds is put in hand.

Screeds shall be finished with a wood float for wood blocks and steel trowel for thermoplastic and similar tiles.

14.4.0 SURFACES TO BE PLASTERED

All surfaces to be plastered must be brushed clean and well wetted before plaster is applied. Joints of walling shall be raked and concrete hacked to form a key. Care shall be taken to see that paving and plastering do not dry out prematurely. Adequate time intervals must be left between successive coats in two coat work in order that the drying shrinkage of the undercoat may be substantially complete.

14.5.0 INTERNAL LIME PLASTER

To be applied in minimum two coats to finish not less than 12mm total thickness. The rendering coat shall be in the proportion of cement and sand (1:4) and the

finishing coat not less than 1.50mm thick shall consist of fine sieved lime putty with 10% of cement thoroughly incorporated immediately before use, trowel led hard and smooth with a steel trowel and sprinkled with water during the process.

The first coat must be well scored to form a key and at least fourteen days must elapse between the completion of any portion of the rendering coat and application of the finishing coat.

14.6.0 EXTERNAL CEMENT AND SAND RENDERING

External cement and sand rendering shall consist of cement and sand (1:4) applied in two coats and finished with wood float.

14.7.0 SAMPLES

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

14.8.0 SCREEDS AND PAVINGS

All screeds and pavings shall be finished smooth, even and truly level, unless otherwise specified and paving shall be steel trowel led.

14.9.0 FINISHING

Rendering and plastering shall be finished plumb, square, smooth, hard and even and junctions between surfaces shall be perfectly true straight and square.

All work not found to be of satisfactory standard shall be hacked away and made good at the Contractor's expense.

Partially or wholly set materials will not be allowed to be used or re-mixed. The plaster etc., mixes must be used within two hours of being combined with water.

14.10.0 GRANOLITHIC PAVING

Granolithic topping is to be in two layers to the total thickness shown on the Drawings and the topping shall consist of one part colored cement to two parts

aggregate shall be 70% black trap and remainder approved local colored stones.

Colours shall be as selected by the Architect.

Paving shall be rolled and trowel led to a dense even surface and rubbed down at completion, to a grit finished surface free from holes and blemishes.

The paving shall be laid in squares divided by plastic strips anchored securely in the screed and having their top edge truly level with the finished floor surface. The granolithic work shall be laid and polished complete to the approval of the Architect.

14.11.0 WOOD BLOCK FLOORING

Wood block flooring shall comply with the requirements of B.S. 1187 mentioned above and shall be dipped in a cold latex bitumen emulsion adhesive before laying.

Any one package or bundle shall contain wood blocks of a single species, thickness, width, length and type of manufacture only. The pattern shall be approved by the Architect.

Wood parquet flooring shall comply with relevant standards and shall be laid using and approved adhesive in accordance with manufacturer's instructions.

14.12.0 P.V.C. COVERINGS

P.V.C. covering shall satisfy the Standard mentioned above and shall be obtained from an approved manufacturer's agent. Floor tiles shall be Dunlop or other equal and approved. Rates shall include for two or an approved emulsion floor polish or other protective coating.

14.13.0 GLAZED WALL TILES

Glazed wall tiles shall be cushion edged and satisfy the relevant Standard as mentioned earlier. Tiles shall be well soaked in water laid with straight horizontal and vertical joints painted in white cement and cleared down at completion.

Tiles joints of 2mm width shall be formed and filled with the redding mix but using very fine, well screened, care shall be taken that tiles are not over soaked and water shall be avoided during fixing.

The fixed tiles shall be kept damp for 4 days. Tiles as slash backs to lavatory basins, sinks and baths shall be fixed with necessary rounded-edge corner tiles.

Rates for linear items shall allow for all special fittings and cutting at angles and intersections.

14.14.0 GENERAL

Rates for in-situ work shall allow for raking out joints walling or hacking of treating with an approved bonding fluid. Hacking concrete form key, dubbing out irregular surfaces of base to provide a finished surface in the same plane as the surrounding surface, cutting out cracks, making good and leaving the whole of the work sound and perfect on completion.

Rates shall also allow for fair edges, whether square, splayed or rounded, arises, chamfered external angles not exceeding 25mm wide, rounded external angles not exceeding 25mm radius coved internal angles not exceeding 25mm radius, intersections to groins and the like, and for making good round pipe, brackets, floor spring boxes and all other items of a like nature.

Rates for all linear items shall allow for all short lengths, angles, end and arises, mitres and intersections and the like.

Rates for all paving shall allow for adequate covering protection during the progress of the works to ensure that the floors are handed over in perfect condition on completion.

Rates of external rendering shall allow for work at any height and for any scaffolding, ladders, cradles etc. required.

14.15.0 TERRAZZO PAVINGS:

Aggregate for terrazzo shall be good quality marble or other natural stone of similar characteristics, hard angular in shape, free from clay, iron oxide and other foreign matter, graded from 10mm to 6mm unless otherwise specified and without excessive content of fines or dust. The source of supply and the colour are to be approved by the Architect before bulk ordering.

Terrazzo flooring must be laid and finished by an approved specialist Sub-Contractor.

All base surfaces must be thoroughly cleaned to remove dust, dirt, rust, oil and loose material.

Terrazzo shall be laid in two courses as follows:-

- a) Base course: cement-sand screed 1:3, not less than 20mm thick, followed immediately by
- b) Topping terrazzo mix as specified, not less than 20mm finished thickness.
- c) Skirtings are to be 6mm thick on a screed not less than 10mm thick.

Terrazzo bays shall not be more than 1M2 and joints shall be formed with plastic or aluminium strips set out to an approved pattern. Strips must be carried through the backings screed and finish flush with the floor surface.

Tamp lightly immediately after laying and compaction trowel lightly, taking care to avoid excessive laitance on the surface. Not less than 3 days after laying, rough polish by an approved mechanical means using water. Grout with a fine mix reserved from the initial mix. Not less than 8 days after grouting, fine polish by an approved mechanical means using water to a texture approved by the Architect.

11.16.0 TERRAZZO FLOOR TILES

Terrazzo floor tiles shall be B.S 4131 of approved manufacturer. The faces of tiles must be free from projections, depressions, flakes and crazes. The overall colour must be practically uniform in any one delivery. The facing level must not be less than 6mm thick after grinding.

Unless otherwise specified or approved by the Architect, tiles are to be 197mm x 197mm x 22mm.

14.17.0 MOSAIC FINISHES

Mosaic finishes shall comply with the requirements of B.S Codes of Practice C.P. 212 Part 2.

14.18.0 QUARRY TILE FINISHES:

Quarry tile finishes shall comply with the requirements of B.S. 1286

14.19.0 GRANITE:

Granite is to be sourced from an approved supplier.

Granite tiles (panels) shall be minimum 20mm thick and

Shall be cut straight and true to the pattern to be Approved by the architect.

Granite tiles shall be laid on a suitable adhesive as Recommended by the supplier.
All joints shall be filled with grout to match the granite colour
After laying and polished to provide a smooth even surface.

Exposed tile surfaces shall be bull nosed (or rounded and polished)

14.20.0 GRANITE / MARBLE WALL FINISHES

Granite and marble wall finishes shall be applied to areas as indicated on the drawings and no larger than can be safely fixed with an approved adhesive – i.e. no mechanical fixing and shall be minimum 8mm thick.

Granite shall be securely fixed, butt jointed, to form a smooth, even and vertical face.

Joints shall be pointed with a matching grout in accordance with the suppliers' recommendations.

Colours shall be carefully selected to match the approved shampoo colour

14.21.0 CERAMIC TILE PAVINGS AND ACCESSORIES

Ceramic tiles and accessories of the type described herein are to be fixed with an adhesive to comply with BF Code of Practice 202 : 1972 (“ tile flooring and flab? Flooring”), tiles are to be laid with close straight joints in each direction

and upon completion grouted in matching coloured cement and washed and cleaned down.

Tiles are to be cut with an electric tile cutting saw.

14.22.0 PLASTERBOARD

The external plasterboard shall be to BS1230 and where described as insulating, shall have a bright aluminium foil model to one side.

Plasterboards shall be fixed on galvanized steel framework complete with all accessories and fixing. Beads shall be to BS6452.

Plasterboard shall be supplied complete with all jointing materials, including compounds and jointing tape to BS6214.

15.0 GLAZING

GLAZING

15.1.0 STANDARDS AND CODES OF PRACTICE

The requirements of the following British Standards and Codes of Practice shall be observed.

British Standards

- a) B.S 952 Glass for glazing.
- b) B.S. 544 Linseed oil putty for use in wooden frames
- c) **NOTE:** The Contractor's attention is drawn to Section "T" of the Standard Method of Measurements.

Codes of Practice

- d) C.P. 152 Glazing and fixing glass for buildings.

15.2.0 MATERIALS AND WORKMANSHIP

The whole of the glass shall be of the best quality and be free from bubbles, specks, waves flaws or any other defects and shall comply with the requirements of the standard mentioned above.

All glass is to be accurately cut to fit easily into rebates. Glass shall be well puttied and sprigged with copper springs.

Glazing to wood frames shall be secured with glazing beads fixed with brass caps and screws and wash leather or approved "Neoprene" beading strips. Putty for lazing in wood frames shall be composed of pure linseed oil and powdered whiting, free from grittiness all in accordance with the standard mentioned above.

Glazing to metal frames shall be with clips, glass shall be properly back puttied and the front putty finished neatly and cleanly.

Putty for glazing in metal frames shall be quick hard setting tropical putty specially manufactured for use with steel windows.

Rebates of metal frames receiving glass shall be prepared and treated with primer for putty prior to glazing and putty shall be primed 10 days after glazing.

Rates for glazing Georgian wired glass shall include for aligning lines in adjoining panes both ways.

Glass panes shall be cut to sizes to fit the opening with not more than 1.6mm play all round. Clear sheet shall be ordinary glazing (OQ) quality and polished plate shall be (GG) quality.

Mirrors to be of selected glazing (S.G) quality plates glass of approved manufacture with beveled edge and fixed at all corners to walls with raw plugs and brass screws with removable chromium plated dome heads.

Cut out all cracked or broken glass re-glazed to match and leave perfect on completion. On no account shall windows be cleaned by scraping with glass.

15.3.0 PARTICULAR SPECIFICATIONS

15.3.1 GLAZING

15.3.1.1 Definitions

15.3.1.1.1 Fixings

The provision of glazing compounds and putties and sprigs, clips and other sundry fixings, shall be deemed to be included with all items of glazing.

15.3.1.1.2 Materials

15.3.1.1.2.1 Glass Generally

All glass shall comply in all respect with the appropriate section of B.S.952. Plain sheet clear glass shall be O.Q; plate glass shall be GG; all glass shall be as manufactured by Pilkington Brothers Limited or another approved manufacturer.

15.3.1.1.2.2 Putty for Glazing to Wood

Putty for glazing to wood shall comply with B.S.544.

15.3.1.1.2.2 Putty for Glazing to Metal

Putty for glazing to metal shall be approved mastic manufactured for the purpose, used in accordance with the manufacturer's instructions.

15.3.1.1.2.2 Samples

Samples not less than 150mm square are to be submitted to the Architect for approval before any glass is cut.

15.3.1.1.2 Workmanship

15.3.1.1.3.1 Glass to be kept free from moisture

All glass surfaces shall be kept dry during transit and storage. Glass becoming moist from condensation or other causes shall be thoroughly dried and aired.

15.3.1.1.3.1 Rebates and Beads

All rebates and beads in wood shall be primed, before glazing is commenced.

15.3.1.1.3.1 Edges of Glass

All glass shall have clean cut edges. All exposed edges (i.e. louvers) shall be rounded and polished.

15.3.1.1.3.1 Bead Glazing

Glazing fixed by beads shall have both glass and beads bedded and back puttied, and the putty trimmed off flush. Where sealing strip is used, it shall pass round both faces of the glass and be trimmed off flush on both sides. Metal surfaces to receive sealing strip shall be treated with mineral oil before glazing.

15.3.1.1.3.1 Putty Glazing

Glazing in putty shall be executed in proper bed and back putties, sprigs, clips and splayed and mitred front putties. The back putties shall be trimmed off flush with the top of rebate and the splayed front putties shall be finished 3 mm back from sight line to allow for sealing between glass and putty with paint.

15.3.1.1.3.1 Wired Glass

Wired glass shall in all cases be 6 mm Georgian wired, either polished or cast as specified. The wire in wired glass shall extend to the edges and be free from rust, and be parallel to the framing.

15.3.1.1.3.1 Mirrors

All mirrors shall be 6 mm polished plate, foil backed and with rounded polished edges. Mirrors with chips, cracks, scratches on back or front will not be accepted.

15.3.1.1.3.1 Safety Glass

All glass fixed below 900mm above floor level shall be either 6mm clear toughened or 6.5mm clear laminated, unless specified otherwise.

All other glass to doors and internal partitions shall be 6mm clear float glass.

Glass to existing windows shall match the original or adjacent glass.

15.3.1.1.3.1 Glass to Partitions

Glass to internal aluminium partitions shall be fixed in accordance with the approved partition system and as recommended by the supplier / manufacturer.

15.3.2 STRUCTURAL GLAZING

Glazing should be Cool-Lite P: Pastel Blue tempered high performance glass by Saint Gobain and shall be:

- a. 10mm thick.
- b. Supplied complete with corresponding spandrel panels.
- c. Supplied complete with floor to floor smoke / heat insulation.
- d. Supplied complete with matching aluminium frames, opening and stay mechanism and completely watertight.
- e. The wind exposure shall be based on the attached climatic data and a city center site.
- f. Suitable for an internal air-conditioned environmental – ambient temperature – 23 degrees centigrade.

The structural glazing shall be supplied and installed by a specialist approved by the Architect and based on approved shop drawings.

STATION NAME : KAMPALA MET. STATION
LATITUDE 0°20'N LONGITUDE 32°36'E

LATITUDE: 4304 FEET 1312 METRES

ATMOSPHERIC TEMP (60-95) RELATIVE HUMIDITY RAINFALL DAILY WIND SPEED CALMS

MONTH	PRESSURE (60-95)		MEANS		RELATIVE HUMIDITY			RAINFALL			DAILY		WIND SPEED (1960-95)		CALMS (1960-95)	
	0600Z	1200Z	MAX	MIN	0300Z	0600Z	1200Z	MEAN (1960-95)	NUMBER OF RAIN	SUNSHINE (1960-95)	MIN.MEAN	0600Z	1200Z	0600Z	1200Z	
	MB	MB	°C	°C	%	%	%	mm	DAYS	MAX MEAN		KNOTS	KNOTS	DAYS	DAYS	
JAN	870.1	867.3	28.4	18.1	53	78	53	51	6	9.2	5.4	7	12	2	0	
FEB	869.9	867.3	28.3	18.1	84	80	55	62	7	9.2	3.7	6	13	2	1	
MAR	869.8	867.3	27.5	18.0	91	82	60	113	11	8.0	5.0	7	12	1	0	
APRIL	870.5	868.2	26.1	17.6	92	88	69	182	16	8.1	4.7	7	11	3	1	
MAY	871.3	869.2	25.4	17.5	92	89	71	140	13	7.5	4.9	7	12	2	1	
JUN	872.1	870.4	25.2	17.2	91	87	68	75	9	7.7	4.2	7	13	2	1	
JUL	872.0	870.5	25.1	16.5	89	89	66	50	7	7.7	2.9	8	12	3	2	
AUG	871.6	869.7	25.6	16.4	92	89	66	86	10	6.6	4.7	8	11	2	1	
SEPT	871.3	868.9	26.6	16.6	93	87	65	101	11	8.0	3.5	8	11	2	1	
OCT.	870.8	867.9	27.2	16.9	91	83	63	109	12	7.8	4.8	7	10	2	1	
NOV.	870.3	867.4	27.2	17.3	86	81	61	114	11	7.9	5.1	6	10	2	1	
DEC.	870.3	867.6	27.2	17.4	87	81	60	97	9	9.4	5.2	7	11	2	1	

1 Knot = 1.85 km/hr

LONG/LAT 32.6 E/0.3N	MARCH	JUNE	SEPT.	DEC.
TIMES OF SUN RISE	6.52 A.M.	6.47 A.M.	6.39 A.M.	6.44 A.M.
TIMES OF SUN SET	6.59 P.M.	6.59 P.M.	6.46 P.M.	6.51 P.M.

GLAZING

16.0 PAINTING AND DECORATING

16.0 PAINING AND DECORATING

18.1.0 STANDARD AND CODES OF PRACTICE

The requirements of the following British Standards and Codes of Practice shall be observed:-

British Standards

- | | | |
|----|-----------------|---|
| a) | B.S 2521 + 2523 | Lead based joint |
| b) | B.S. 3968 | Calcium plumbate priming paints |
| c) | B.S. 4756 | Ready mixed aluminium priming paints for
woodwork |
| d) | B.S. 1335 | Knotting |
| e) | B.S. 3842 | Treatment of plywood with preservatives. |
| f) | B.S. 4800 | Paint colours for building purposes |
| g) | B.S 2524 | Red-Oxide-Linseed oil priming paint |
| h) | B.S. 2525-7 | Undercoating and finishing paints |
| i) | B.S. 1215 | Oil Stains |
| j) | NOTE: | The Contractor's attention is drawn to Section "U" of the
Standard Method of Measurements. |

Codes of Practice

- | | | |
|----|-----------|--|
| k) | C.P. 231 | Paints for buildings |
| l) | C.P. 3012 | Cleaning and preparations of metal surfaces. |

16.2.0 **GENERAL**

All work under this trade must be executed by an approved specialist unless otherwise permitted.

The Contractor's Programme in this area shall be so arranged that all others trades are completed and away from the area to be painted prior to the commencement of painting. Before painting the Contractor must remove all concrete and mortar droppings and the like from all work to be decorated and remove all strains from and obtain uniform colour to work to be oiled and polished.

16.3.0 **MATERIALS AND WORKMANSHIP**

All plaster, metal, wood or other surfaces which are to receive finishes of paint, stain, polish, distemper or paint work of any description are to be carefully inspected by the Contractor before he allows any of his painters to commence work. The Contractor will be held solely responsible for all defective work as a result of his painter's failure to insist on receiving from the other trades surfaces in the proper condition to allow first class finishes to the various kinds specified being applied to them.

All painting and decorating schemes shall be carried out in colours selected by the Architects.

Paints shall be ready mixed, oil based priming paint shall comply with the requirements of the relevant standards mentioned earlier.

The oil shall comply with the requirements of B.S. 1215

All materials shall be of the best quality and shall be of an approved proprietary brand selected from the latest Schedule of Approved paints issued by the Ministry of Works.

Materials to be applied externally shall be of external quality and/or recommended by the manufacturers for external use.

Materials shall be delivered to site intact in the original sealed drums or tins and shall be mixed and applied strictly in accordance with the manufacturer's instructions and to the approval of the Architect.

Unless specifically instructed or approved by the Architect, no paints, distemper etc. are to be thinned or otherwise adulterated, but are to be used as supplied by the manufacturers and direct from the tins.

If required by the Architect the Contractor shall provide at his own expense samples of paints etc. with containers and cases to be forwarded, carriage paid, by the Contractor for analyzing to a laboratory.

The priming, undercoat and finishing coats shall each be of differing tints, and the priming and undercoats shall be the correct brands and tints to suit the respective finishing coats, in accordance with the manufacturer's instructions. All finishing coats shall be of colours and tints selected by the Architect. Each coat must be approved by the Architect before the next coat is applied.

Each coat shall be properly dry and in the case of oil or enamel paints shall be well rubbed down with fine glass paper before the next is applied. The paintwork shall be finished smooth and free from brush marks.

Colour cards of all paints etc. shall be submitted to, and samples prepared for approval of the Architect before laying on, and such samples, when approved, shall become the standard for the works.

All paints, emulsion paints, and distempers shall be applied by means of a brush or spray gun or rollers of an approved type, where so agreed by the Architect.

No painting is to be done in wet weather or on surfaces which are not thoroughly dry.

Woodwork to be painted shall be rubbed down and all knots and resin pockets shall be scorched back and coated with knotting. After priming all nail holes and other imperfections shall be stopped and the whole surface be rubbed down and all dust brushed off. The surface of woodwork shall be lightly sand prepared between the coats.

All work in contract with walling or plaster shall be treated after cutting and preparation but before assembly or fixing with one coat of wood preservative. The solution is to be brushed on all faces of all timbers, unless exposed to view and painted. The Contractor shall note that this solution is poisonous and shall take all necessary precautions and instruct his workmen accordingly.

Wax polish shall be furniture polish of an approved brand, and wood surfaces shall be clean smooth free from oil or grease or any other blemishes. A minimum of two coats shall be applied to approval.

Plaster surfaces shall be perfectly smooth free from defects and ready for decorations. All such surfaces shall be allowed to dry a minimum period of six weeks, stopped with approved plaster compound stopping and rubbed down flush as necessary, and then thoroughly, immediately prior to decorating.

Plaster surfaces which are to be finished with emulsion, oil or enamel paint shall be primed with an alkali resisting primer complying with the particular paint manufacturer's specifications and applied in accordance with their instructions.

Fibre board or similar surfaces shall be lightly brushed down to remove all dirt, dust or loose particles and have all nail holes or other defects stopped with an approved plaster compound stopping rubbed down flush and left with a texture so match surrounding materials and shall receive one coat petrifying liquid at last or two coats polyurethane or clear laquer.

All metal surfaces shall be thoroughly brushed down with wire brushes and scrapped where necessary to remove all scale, rust, etc. immediately prior to decorating. Where severe rust exists and if approved by the Architect a proprietary de-rusting solution may be used in accordance with the manufacturer's instructions.

Hot primed and unprimed surfaces shall be given one coat of metal chromate primer.

Galvanized surfaces shall be treated before painting with an approved proprietary or de-greasing solution before priming.

Coated surfaces already treated with bituminous solution shall be scrapped to remove soft parts and then receive two isolating coats of aluminium primer or other approved anti-tar primer.

Existing painted and decorated surfaces shall be prepared as described above. Painted plaster, metal or wood surfaces shall then be rubbed down to expose the material beneath and old paint burnt off with blow torches if necessary in the Architect's opinion.

Emulsion paint on ceilings and all undercoats of emulsion paint and complete oil painting on walls shall be completed before PVC flooring are laid. Final coat of emulsion paints on walls shall be applied after such flooring has been laid complete.

Three coats of emulsion paints shall be applied to receiving surfaces using a thinning medium or water only if and as recommended by the manufacturer. An approved plaster primer tinted to match may be substituted for the first coat.

Enamel paint shall be applied in two undercoats and one finishing coat after preparation and priming as specified above.

All ironmongery shall be removed from joinery steel windows and louver before painting is commenced and shall be cleaned and renovated if necessary and re-fixed after completion of painting.

Rates for painting shall be deemed to include for preparing and priming surfaces above described.

Rates for paints, distemper etc. shall allow for covering up all floors, fittings, etc. with dust sheets when executing the work and for removing, covering when no longer required and floor cleaning off, touching up and leaving perfect at completion.

17.0 DRAINAGE

17.0 **DRAINAGE**

17.1.0 **STANDARD AND CODES OF PRACTICE**

The requirements of the following British Standards and Codes of Practice shall be observed.

British Standards

- a) B.S. 556 Part 1+2 Concrete cylindrical pipes and fittings (including manholes, inspection chambers and street gullies)
- b) B.S. 401 Concrete un-reinforced tubes and fittings (with ogee joints for surface water drainage)
- c) B.S. 437 Part 1 Cast iron spigot and socket drain pipes and fittings.
- d) B.S. 1247 Manhole step irons (in malleable cast iron)
- e) B.S. 2760 Pitch-impregnated fibre drainage pipes and fittings.
- f) B.S. 1211 Centrifugally cast (spun) iron pressure pipes for water, gas and sewage.
- g) B.S. 1130 Cast iron drain fittings.
- h) NOTE The Contractor's attention is drawn to Section "V" of the Standard Method of Measurement.

Codes of Practice

- i) C.P. 301 Building drainage
- j) C.P. 2005 Sewerage
- k) C.P. 2010 Pipelines

17.2.0 **PLASTIC PIPES**

The pipework and fittings for use underground shall be u PVC to B.S. 4660

17.3.0 **CAST IRON PIPEWORK**

Cast iron pipework which is used in connection with buried external services, shall be manufactured, coated and tested in accordance with the requirement of B.S. 1211

All buried cast iron bends, elbows sweep tees and other fittings, shall comply with the requirements of B.S. 1130.

Jointing on external cast iron pipe shall be carried out in accordance with one of the methods described in British Standards Code of Practice 301, Clause 505 c (v), to the approval of the Architect.

17.4.0 **PITCH FIBRE PIPEWORK**

Pitch fibre pipework and fittings for use in connection with external drainage services shall be manufactured in accordance with the requirements of B.S. 2760. Pipes shall be connected by means of purpose made tapered joints manufactured in accordance with B.S. 2760.

Until such time as the use of pitch impregnated fibre pipes is covered by Code of Practice, the jointing, laying and cutting of these pipes shall be carried out in accordance with the requirements of the notes under Appendix C of B.S. 2760.

17.5.0 CONCRETE PIPEWORK

Where concrete pipes and fittings are used in connection with the conveyance of surface water or sewage under atmospheric pressure, they shall be manufactured in accordance with the requirements of B.S. 556, Class 1, except where otherwise stated.

The joints of concrete pipe and fittings may be one of the following depending upon application and conditions:-

- 1) Flexible spigot and socket type
- 2) Flexible rebated type (stormwater drainage only)
- 3) Ordinary spigot and socket type.
- 4) Ordinary rebated type (Stormwater drainage only)

Joints (1) and (2) shall be sealed with suitable rubber gaskets manufactured in accordance with B.S. 2494 except where they are likely to be contaminated by oil products, in which case the gaskets shall be manufactured in accordance with B.S. 3514.

Joints (3) and (4) shall be made with approved cement mortar mix.

17.6.0 ASBESTOS CEMENT SOIL WASTE AND VENTILATION PIPES

Where spigot and socket asbestos cement pipes and fittings are used in connection with the conveyance of soil and waste or ventilating purposes in above ground applications, they shall be manufactured in accordance with B.S. 583 and shall comply with Uganda Environment requirements.

Pipes and fittings shall be joined with cement/sand mortar cement content not to be greater than 30% of the fibrough cementations jointing compound.

Alternatively, if synthetic rubber rings are used, the annular space between socket and pipe above the ring shall be packed with a suitable mastic compound.

Rubber rings shall comply fully with the requirements of B.S. 2494.

17.7.0 VALVES

17.7.1 DRAW-OFFS AND STOP VALVES (UP TO 50MM NOMINAL BORE)

Draw off taps and stop valves up to 50mm. Nominal bore, unless otherwise stated or specified, for attachment or connection to sanitary fitments shall be manufactured in accordance with the requirements of B.S. 1010.

17.7.2 GATE VALVES

All gate valves 80mm. Nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S. 3464.

All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirement of B.S. 1952.

All gate valves up to and including 65mm. Nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all gate valves shall depend upon the pressure conditions pertaining to the Site Works.

17.7.3 GLOBE VALVES

All globe valves up to and including 65mm. Nominal bore shall be of bronze construction in accordance with B.S. 2060.

All globe valves 80mm. Nominal bore and above shall be of cast iron construction in accordance with the requirements of B.S. 3961.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the Site of Works.

17.7.4 CHECK OR NON-RETURN VALVES

All check or non-return valves up to and including 65mm. Nominal bore shall be of the swing check of bronze construction in accordance with B.S. 1953.

All check or non-return valves 80mm. Nominal bore and above shall be of the swing check type of cast iron construction in accordance with the requirements of B.S. 4090.

The pressure classification of all check-non-return valves shall depend on the pressure conditions pertaining to Site of the Works.

17.7.5 BALL VALVES

All ball valves for use in connection with hot and cold water services shall be of the Portsmouth type in accordance with the requirements of B.S. 1212, constructed from bronze or other corrosion resistant materials. These valves fall into three pressure classification as follows:-

- | | | | |
|-------|-----------------|---|------------------|
| (a) | Low Pressure | - | 3,538 b maximum |
| (b) | Medium Pressure | - | 7,725 b maximum |
| (c) | High Pressure | - | 12,620 b maximum |

The pressure classification required for each ball valve will be designated in the description of its associated equipment contained in Part C of the Specification.

17.7.6 MANUALLY OPERATED MIXING VALVES

Mixing valves for shower fittings and other applications being provided under the Sub-Contract Works shall be manufactured in accordance with the requirements of B.S. 1415 from bronze or other corrosion resistant materials.

17.8.0 WASTE FITMENT TRAPS

19.8.1 STANDARD AND DEEP SEAL P AND S TRAPS

Where standard or deep seal traps are specified they shall be manufactured in suitable non-ferrous materials in accordance with the full requirements of B.S. 1184.

In certain circumstances, cast iron traps may be required for cast iron baths and in these instances bath traps shall be provided which are manufactured in accordance with the full requirements of B.S. 1291.

17.8.2 ANTI-SYPHON TRAPS

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Ltd., Deacon Works, Littlehampton, Sussex, England.

17.9.0 GENERAL

Drain pipes have been measured over all bends, junctions and other fittings and the Contractor shall include in his prices for all joints, short lengths, cutting and waste. Rates for bends, junctions, etc., shall include for the extra joints, cutting and waste and any labour required.

Lines of drains shall be accurately set out and trenches excavated and bottom trimmed to accurate gradients to approval before pipe laying commences.

Generally the drainage is to be executed in suitable sections to cause the minimum interference to the continual use of any existing drains. The location and depths of any existing drains shall be ascertained before other work is commenced and the rates are to include for all costs of complying with this requirement.

Excavation for drain trenches shall be not less than 300mm wider than the external diameter of the pipes and rates shall include for grading ground under beds, carefully filling earth to avoid damaging pipes, ramming and carting away surplus excavated material, keeping excavations free from water, if necessary executing such works and installing such pumps as may be required to keep the excavations dry at all times, and any necessary planking and strutting.

No subsoil water shall be discharged into the sewers without the written permission of the Architect.

Excavations shall be made to such depths and dimensions as may be required by the Architect to obtain proper falls and firm foundations. No permanent construction shall be commenced on any bottom until the excavation has been examined and approved by the Architect. Should the Contractor in error or without the instruction of the Architect, make any excavation below the required level of the drain or bed, as the case be, he will be required to refill such excavation to the correct levels with concrete (1:4:8 – 38mm gauge).

Rates shall include for excavating in all materials met with and for trimming bottoms to the necessary falls and working space.

The first back filling of pipes trenches is to be of material free from stone and shall be watered and carefully tamped over and around the pipes in 300mm layers until they are covered to a depth of 600mm. Subsequent filling is to be in 150mm layers watered and rammed, only, materials approved by the Architect are to be used for backfilling.

Where hardcore is used for backfilling it is not to exceed 150mm gauge and all interstices shall be properly filled with small pieces and fine binder. Surplus excavated materials are to be removed from site.

If in the opinion of the Architect care has not been exercised in refilling trenches, he may order a fresh test to be on the drain. In the event of the drain failing to pass the test the contractor will be required to remedy the fault at his expense.

Concrete beds and surrounds shall be of concrete 1:3:6 – 20mm gauge to the thickness falls, and widths specified. Hollows shall be left to receive the collar of the pipe, so that the pipes sufficiently wide to form hard-holds to permit the joining of pipe, and after resting drains shall be haunched to both sides to half the diameter of the pipe in similar concrete.

Where pipes are specified to the surrounds, the concrete shall be carried up from the bed in a square section with a minimum of 150mm in thickness over the barrel of the pipe.

Rates for beds and surrounds shall include for forming recesses and filling with concrete, for mortar layer etc. and for any necessary formwork.

Each pipe shall be carefully examined on arrival, any defective pipes shall be removed immediately from the site and not used in the works. Minor damage to the protective coating of cast iron pipes shall be made good by painting with hot tar; if major defects in the coating exists such pipes shall be rejected and removed from the site.

Drains are to be laid in a straight line from point to point and each pipe is to be properly bowed in so that the invert is a true and even gradient in order to achieve a fall giving a self cleansing velocity. The Contractor shall provide suitable equipment and set up and maintain all sight rails, bowing rods, and bench marks etc. necessary for the purpose.

All drains shall be kept free from earth debris, superfluous cement and other obstructions or water during laying and until completion of the contract when they shall be handed over in a clean condition.

Pipes shall be laid with sockets leading uphill and shall rest on solid and even foundations for the full lengths for the barrel, sockets recesses shall be formed in the foundations, as short as practicable but sufficiently deep to allow the pipe jointer room to work right round the pipe. Such recesses shall be filled with cement mortar (1:4) on completion of laying.

All joints are to be accurately made by butting the pipes together, caulking with tarred rope neat cement finished externally with bold fillet neatly pointed. As each pipe is laid it is to be drawn with a badger and left free of all obstructions.

Rates of bends junctions and other fittings in drains shall include all cutting and waste and extra joints.

The testing of drains shall be done at completion and before the trenches are filled in. They shall be tested in the presence of the Architect and a representative of the

Local Authority by filling with water having a head not less than 1.5m at the highest point of the section under test. A second and similar test may be applied, after the drain trenches are filled in and the work complete.

Manholes shall be construction in the position indicated on the Drawings or as required by the Architect. Such chambers shall be to the depths required to obtain even gradients in the drain and of sufficient size to contain the requisite main channel and any branches thereto and all the entire satisfaction of the Architect and Local Authority.

Rendering to manholes shall be trowelled smooth coved at all internal angles and rounded at arises.

Manholes are to be tested for water-tightness in the same way as to drain by filling with water but not exceeding 1.5m head. The Contractor shall supply all testing apparatus and materials necessary for these tests and provide all labour and assistance required. Any failure whatsoever in the drainage system to withstand the specific tests and any defects appearing are to be made good and the drains re-tested to the satisfaction of the Architect and Local Authority.

For connection to public drainage the Contractor shall make all arrangements with the Local Authority and pay all fees that may be required for connections to main sewers.

17.10.0 TESTING AND INSPECTION

Site Tests – Pipework System

17.11.0 UNDERGROUND DRAINAGE SYSTEM

A Site test shall be carried out on all drainage pipes before concrete haunchings or surrounds are applied. These tests shall be carried out preferably from manhole to manhole.

Short drains connected to a main drain between manhole shall be tested as one system with the main drain. In long branches a testing junction shall be inserted next to the junction with the main drain and the branch tested separately. After the test has been passed, the testing junction shall be effectively sealed.

All test on underground drains shall be water tests. Smoke tests shall not be permitted.

In certain circumstances air tests may be permitted on cast iron drains at the discretion and to the approval of the Architect.

Water tests shall be carried out in accordance with the methods described under B.S. Code of Practice 301. Clauses 601 (b) and (c) and the test pressure shall be not less than 1.520mm head at the highest point in the pipe section and not more than 10.360m head at any point in the section.

The test pressure shall be maintained for a period of one hour during which time the pipes and joints shall be inspected for sweating and leakage. Any leaks discovered during the tests shall be made good by the Sub-Contractor and the section re-tested.

In addition to pressure tests, drain pipe runs shall also be tested for straightness where applicable. This test shall be carried out in accordance with one of the two methods described in B.S. Code of Practice 301, Clause 601 (C).

Testing of manholes shall be carried out in accordance with the methods described under B.S. Code of Practice 301, Clause 601 (f).

17.12.0 ABOVE GROUND SOIL WASTE AND VENTILATION PIPE SYSTEMS

All soil, waste and ventilation pipe system 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.

All soil, waste and ventilation pipe system 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.

Water tests on above ground soil, waste and ventilating pipe systems shall 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 Sub-Contractor and the test repeated to the approval of the Architect.

In all other respects, tests shall comply with the requirements of B.S. Codes of Practice 304.

17.13.0 SITE TEST – PERFORMANCE

Following satisfactory pressure tests on the pipework systems, operational tests shall be carried out in accordance with the relevant B.S. Codes of Practice on the system as a whole to establish that special valves, gauges, controls, fittings equipment and plant are functioning correctly to the satisfaction of the Architect.

18.0 EXTERNAL WORKS

18.0 EXTERNAL WORKS

18.1.0 STANDARDS

The requirements of the following British Standards shall be observed:-

British Standards

- a). B.S. 1621 Bitumen Macadam (with crushed rock or slag aggregate)
- b). B.S. 340 Precast concrete kerbs, channels, edgings and quadrants
- c) B.S. 368 Precast concrete flags
- d) B.S. 4428 General landscape operations (excluding hard surfaces)
- e) B.S. 3882 Recommendations and classifications for top soil
- f) B.S. 3936 Nursery stock
- g) B.S. 3998 Recommendations of treework
- h) NOTE Preambles to preceding trades where applicable shall apply equally to the work contained herein.

18.2.0 GENERALLY

20.2.1 Standard specification

In case where no particular specification or standard is given for any article or material to be used in the Contract, the relevant Specification of the British Standards institution or other relevant standard shall apply unless otherwise stated.

20.2.2 Submission of samples

As soon as possible after the Contract has been awarded, the Contractor shall submit to the Architect a list of the suppliers from whom he proposes to purchase the materials necessary for the execution of the works. Each supplier must be willing to admit the Architect, or his representative to this premises during ordinary working hours for the purpose of obtaining samples of the materials in question. Alternatively, if desired by the Architect, the Contractor shall deliver the samples of materials to be used as aggregates, shall be taken and tested in accordance with the provisions of British Standard 812: Sampling and Testing of Mineral Aggregates, sands and Fillers. Subsequent supplies shall conform, within the specified tolerances, to the quality of approved samples.

The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no source of supply shall be changed without the Architect's prior approval.

Samples of materials approved will be retained at the Architect's office until the completion of the Contract. Samples may test to destruction.

All materials delivered to site must be at least equal in all respects to approved samples.

18.2.3 Manufacturer's Certificates

The Contractor shall, whenever required obtain from the manufacturer and submit to the Architect, certificates showing that tests of materials have been carried out in accordance with the requirements of the relevant British Standards, or other approved Standards, or with the requirements of this Specification.

No payment will be made in respect of any costs incurred by the Contractor or by the manufacturers in connection with tests required by this clause or for supplying test certificates in respect thereof.

18.2.4 Rejected materials

Should any materials or articles manufactured on or off the site be, in the of the judgement Architect, of inferior quality, or damaged in any way as to make it unsuited for the work, then such materials or articles shall not be used on the works and shall be removed and replaced, all at the Contractor's expense and in each case as the Architect shall decide and direct.

18.2.5 Building stone

All building stone shall be capable of withstanding when wet a crushing stress of 1.4kg/sq.mm. The source shall be approved by the Architect and stone supplied there shall be free from magadi,overburden, mudstone, cracks sandholes, veins laminations or other imperfections. The stone shall be chisel-dressed into true rectangular blocks, with each surface even and at right angles to all adjoining surfaces, to the size specified. For exposed stonework the maximum permissible variation of any of the specified dimensions shall be 6mm provided that cut stone, supplied as rock face stone may be hammer dressed on one face only, or on the face and one end, if in other respects it conforms with this specification. Stone shorter than 75mm will not be accepted.

Unless the Architect allows otherwise the Contractor shall at his own expense provide and dress for 100mm cubes of stone for testing.

The stone shall be sound when tested in accordance with B.S. 1438: mada for Biological percolating filters, Appendix B, (sodium sulphate soundness test) except that:

- a). The treatment shall be repeated for 10 cycles only ; and
- b). The second criterion of failure shall be amended to allow for a loss of weight of not more than 20% of its original weight.

18.2.6 Stone dust

Stone dust for blinding shall be blacktrap screened to the following grading:-

- | | | | |
|-----|---------|---------------|------------|
| a). | Passing | 10mm sieve | 100% |
| b). | Passing | No. 4 sieve | 85% - 100% |
| c). | Passing | No. 100 sieve | 5% - 25% |

18.3.0 SITE CLEARANCE AND EARTHWORKS

20.3.1 Levels to be agreed in advance

Prior to any site clearance, the Contractor shall satisfy himself that the existing ground levels as indicated on the Drawings or schedules of longitudinal or cross section levels are correct. Should the Contractor wish to dispute any levels he shall submit to the Architect a schedule of the position of the levels considered to be in error and a set of revised levels. The existing ground relevant to the disputed levels shall not be disturbed before the Architect's decision as to the correct levels is given. If the Contractor fails to take the requisite levels, the ground levels shown on the Drawings and sections or as determined by the Architect shall be taken as correct.

18.3.2 Clearing

Prior to commencement of any earthworks, the Contractor shall clear the area of the Site indicated on the Drawings, unless otherwise directed by the Architect. He shall also, at times required or approved by the Architect, clear the site over the area of stockpiles, road junctions, lines of ditches or drains and such areas as the Architect may require.

All surface objects and all trees, hedges, scrub, undergrowth, stumps and tree roots, not designated to remain, shall be cleared and/or grubbed.

Materials and debris which cannot be burnt shall be carted to tips provided by the Contractor or otherwise disposed of to the satisfaction of the Architect.

18.3.3 Removal of topsoil roots and grass

Topsoil, roots and grass shall be stripped in a separate operation from clearing.

Unless otherwise directed by the Architect, topsoil, roots and grass shall not be stripped over the full area of the site, but only over the area affected by the earthworks.

18.3.4 Dust

The Contractor shall implement measures to control dust, by periodically spraying the works with water.

The Contractor shall take all necessary precautions against the growth on the site of weeds and shall remove them as necessary throughout the period of works and maintenance.

18.3.5 Earthworks limits

The Contractor shall restrict his workings to the limits described in the Contract, unless otherwise approved by the Architect.

18.3.6 Definitions

- Fill-material : “Fill-material” shall mean material deposited in accordance specifications from any of the classes specified in clause W.9 in order to build up an earthworks construction to formation level as shown on the Drawings or as ordered by the Architect.
- Spoil-material : “Spoil-material” shall mean material deposited in accordance with these specifications from any of the classes specified in clause W.9 and which, being obtained from “cut” is unsuitable surplus to the requirements of the works.
- Sub-grade : “Sub-grade” shall mean the upper layer(s) of material, either insitu or infill. Where there is no improved sub-grade, the top of the sub-grade is at formation level. When an improved sub-grade is placed, the top of the improved sub-grade is then considered as the formation level. In this section, unless otherwise specified, “sub-grade” shall mean the upper 300mm of earthworks (compacted thickness), either in-situ or infill.
- Improved sub- grade : “Improved sub-grade” shall mean the layer(s) of selected infill material, the top of which is at formation level, placed where the natural in-situ or fill-material is, in the opinion of the Architect, unsuitable for the direct support of the pavement. The material for sub-grade shall be obtained from borrow areas. The thickness of an improved sub-grade shall be at least 150mm.

18.3.7 Classification of excavated material

Excavation will be paid for separately for the following three classes of material:-

- a). Class 1 : Hard material (or rock) : This class shall include all material which, in the opinion of the Architect, either:-

- i) requires blasting for its removal or,
 - ii) requires the use of metal wedges and sledge hammers for its removal, or
 - iii) requires the use of compressed air drilling for its removal or,
 - iv) is such that, when worked with a tractor of at least 200kw (270 flywheel h.p.), fitted with a rearmounted heavy-duty hydraulic single tine of 100mm maximum width, the tine penetrates to a depth less than 75mm.
- b). Individual boulder greater than 1C.M. in volume shall be included in this class when their nature and size are such that, in the opinion of the Architect they cannot be removed without recourse to one of the above methods.
- c). Where a portion of excavation contains 50% or more by volume of boulders of this order, such portion shall be considered as class 1 material throughout.
- d) Class 11 :Medium-hard material (or rippable) : This class shall include all material such as consolidated gravel, weathered or stratified rock, stones or boulders less than 1 C.M. in volume, which, in the opinion of the Architect:-
- i). Can be extracted without recourse to the methods specified for class 1 material, but
 - ii). requires ripping for its removal, or
 - iii). in confined spaces, requires hand-excavation using compressor tools for its removal.
- e) Provided all reasonable steps have been take to the satisfaction of the Architect, to facilitate the removal of the material by other methods.
- f) Class 111: Normal Material: This class shall include all material which does not require recourse to the methods for class 1 and 11 materials.

18.3.8 Excavation

Over excavation: Any excess excavation shall be made good at the Contractor's own expense by backfilling with approved "base" material, deposited and compacted as specified.

Where slopes in rock are excavated in excess the tolerance specified shall be reinstated in class 25 reinforced concrete all suitably bolted to the rock face as directed by the Architect at the Contractor's own expense.

Excavation below embankments and below formation level: where any material below the natural ground level under embankments or below formation level in cuttings is required to be excavated, it shall be removed to such depth and over such areas as shown on the Drawings or as directed by the Architect. The resultant excavation shall be backfilled with an approved material deposited and compacted as specified for the forming of embankments and sub-grade.

If, after the removal of material as specified in the above paragraph, the Contractor allows the material exposed to reach a condition where compaction or back-filling is impracticable, he shall make good at his own expense, either by additional excavation and backfilling or by other measures.

18.3.9 Stockpile areas

The Contractor shall obtain the approval of the Architect to the siting of the stockpiling areas.

No material shall be stockpiled without the consent of the Architect. The Contractor shall give the Architect at least 24 hours notice of his intention to stockpile. Stockpile areas shall be chosen and prepared and all stockpile material shall be deposited in such a way as to facilitate subsequent measurement of stockpile volume and in all instances shall be to the satisfaction of the Architect.

18.3.10 Construction of embankments and fills

General: All embankments and fills shall be formed and completed to the correct lines, slopes, widths and levels shown on the Drawings.

Where shown on the Drawings or directed by the Architect, shoulders and beams shall be constructed as part of the earthworks operation and paid for as such.

Unless otherwise specified, where an embankment of less than 1m below formation level is to be made, topsoil and all vegetable matter shall be removed from the surface upon which the embankment is to be placed and the cleared surface shall be completely broken up by ploughing or scarifying to a minimum depth of 150mm. This area shall then be compacted to a dry density of at least 95% MDD (Standard Compaction).

Unsuitable material: Embankments and fills shall be constructed only of material approved by the Architect, obtained from the excavations of cuttings, ditches and borrow-areas.

Materials with high swelling characteristics or high organic matter content and any other undesirable material shall not be used, unless specifically directed by the Architect. Unsuitable material shall include:-

- a). All material containing more than 5% by weight, of organic matter (such as topsoil, material from swamps, peat, logs, stumps and perishable material).
- b). All material with a swell of more than 3% (such as black cotton soil).
- c). All clay of liquid limit exceeding 80 or plasticity index exceeding 50.
- d). Materials having moisture content greater than the maximum permitted for such materials.

18.3.11 Rock-fill: "Rock-fill" shall consist predominantly of class 1 material of such size that the material can be placed only in layers of compacted thickness exceeding 300mm.

Unless otherwise directed by the Architect, stones and boulders greater than 0.2 C.M. in volume (average size : 600mm) shall not be used for the construction of embankments and fills.

Selection of materials for the upper layers : The Architect may direct the certain materials to be excluded from the sub-grade (see clause W.15) or from the upper layers of fill. He may also direct that other materials be set apart or obtained from borrow and used only for these layers. The Contractor shall then comply with the Architect's directions and shall allow in his rates for such selection of materials.

Rock-fill shall not be placed less than 600mm below formation level.

18.3.12 Laying of Compaction: Where material other rock-fill is used for the construction of embankments and fills, it shall be placed in layers of compacted thickness not exceeding 300mm, unless otherwise directed by the Architect. The layers shall be parallel to the top of sub-grade level and cross-section.

Unless otherwise specified, the layers of fill material shall be compacted throughout to a dry density of at least 95% MDD (Standard Compaction), except for the upper 300mm (sub-grade) which shall be compacted to a dry density of at least 100% MDD (Standard Compaction).

The moisture contents of the material shall be adjusted so that the above minimum compactions are obtained. Unless otherwise accepted by the Architect, the moisture contents at the time of compaction shall not exceed 105% of the optimum moisture content (Standard Compaction). Where water needs to be added, it shall be applied in an even manner and the rate of application shall be such that no transverse or longitudinal flow occurs.

Where rock is used a filling, the rock shall be placed in the bottom of the embankment or as directed by the Architect. The largest portions of rock shall be placed in layers of maximum compacted thickness of 1m. The interstices shall be filled with spalls and finer material approved by the Architect. The whole layer shall be material approved method, until the interstices are completely filled and until the specified compaction is obtained.

18.3.13 Drainage of works

All cuttings and embankments shall be kept free of standing water and drained during the whole of the construction.

Should water accumulate on any part of the earthwork either during construction or after construction the Contractor shall remove and replace at his own expense any material, which in the opinion of the Architect, has been adversely affected.

The Contractor shall so order his construction programme that the construction of culverts and drains does not lag behind the earthworks. Well in advance of commencing the earth-moving operations over swampy or waterlogged areas, the Contractor shall cut drains and ditches and carry out any other works as necessary to assist in draining the ground.

All drains and ditches shall be maintained in proper working order throughout the duration of the Contract.

The Contractor shall allow in his rates for draining the earthworks satisfactorily at all stages during the construction and arrange his methods and order of working accordingly.

He shall provide within the site where necessary temporary water-courses, ditches drains, pumping or other means of maintaining the earthworks free from standing water. Water discharged from the site shall not be run into a road but be carried direct to an approved sewer, ditch or river through troughs, shutters or pipes.

Such provision shall include carrying out the work of forming the cuttings and embankments in such a manner that their surfaces have at all times a sufficient minimum crossfall and, where practicable, a sufficient longitudinal gradient to enable them to shed water and prevent ponding.

In pumping out excavations and in any lowering of the water table the Contractor shall pay due regard to the stability of all structures.

18.3.14 Side ditches

Side ditches, considered as earthworks and measured and paid for as such, shall be shaped by excavating to the lines, slope and widths shown upon the Drawings and finished off so that the sub-grade levels and Camber or super-elevation of the of the sub-grade level and cross fall of the shoulders and slope and invert levels of the side ditches are everywhere in accordance with the Drawings or as directed by the Architect.

18.3.15 Sub-grade and improved sub-grade

Unless otherwise specified or directed by the Architect, materials forming the direct support of the pavement shall comply with the following requirements:-

- a) CBR (100% BS - 4 days soak) : Minimum 5%
- b) Swell (100% BS - 4 days soak) : Maximum 2%
- c) Organic matter (percentage by weight : maximum 3%

Where, in the opinion of the Engineer, material unsuitable for the direct support of the pavement occurs in cuttings, the Contractor shall excavate it to the depths and widths directed and replace it with selected fill material to form an improved subgrade. The work will be paid for at the appropriate rates of "spoil" and "fill" and no additional payment will be made.

18.3.16 Laying and compaction:

The maximum compacted thickness which shall be laid, processed and compacted at one time shall be 300mm.

The layer shall be clarified, water shall be uniformly mixed in or the material allowed to dry out to the correct moisture content.

The upper 300mm of the earthworks (that is to the sub grade) shall be compacted to a dry density of at least 100% MDD (Standard Compaction) in cuttings where there is no improved sub grade and everywhere in fills and embankments.

In cuttings where an improved subgrade is to be placed, the upper 150mm of the subgrade prior to the placing of the improved subgrade layer(s), shall be compacted to at least 100% MDD (Standard Compaction), unless otherwise specified.

All improved subgrade shall be compacted to a dry density at least 100% MDD (Standard Compaction) for its full depth.

The moisture content shall be adjusted in order that the above minimum Compactions are obtained. Unless otherwise accepted by the Engineer, the moisture content at the time of compaction shall not exceed 105% of the optimum Moisture Content (BS).

Top of subgrade (including improved subgrade) : During the above process, the surface of each subgrade layer shall be graded to level, parallel to the crossfall and camber and profile shown upon the Drawings or directed by the Engineer and to the Tolerance specified.

The subgrade shall be cleaned of all foreign matter and way potholes, loose material ruts, corrugations, depressions or other defects which have appeared in the subgrade layer, due to improper drainage, traffic or any other cause, shall be corrected. If directed by the Engineer, the Contractor shall scarify, grade and recompact the subgrade to line, level and specification at his expense.

No work above the subgrade shall be executed until the subgrade has been inspection and approved by the Engineer.

18.4.0 CONSTRUCTION OF SUB-BASE AND BASES

18.4.1 General

The term “gravel” used throughout this section shall be deemed to include; lateritic gravel, Quartzitic gravel, some forms of weathered rock, soft stone, coral rag and conglomerate.

A “grade” base will be made up of one of these natural gravels, or of sand or clay sand, or of a combination of these materials, without the addition of any stabilizing agent.

18.4.2 Material requirements

Unless otherwise specified or directed by the Engineer, the material shall comply with the following requirements:-

California bearing ratio:

- a). The material for base shall have CBR of least 80.
- b). The material for sub-base shall have a CBR of at least 30.
- c) Unless otherwise specified, the CBR shall be measured at a dry density corresponding to 95% MDD (heavy compaction) and after 4 days.

18.4.3 Requirements for gravel:

In addition to the CBR requirements, the gravel material shall comply with the following specification:-

Gravel for		Base	Sub-base
Plasticity Index	- Maximum	15	25
Loss Angels value	- Maximum	30	70
Aggregate Crushing value	- Maximum	35	75

Grading:

The grading curve of the material, after processing compaction shall be a smooth curve within either of the following envelopes, as applicable:-

Sieve Size (mm)	Percentage by weight passing				
	Base		Sub-grade		
80	-		100		
63	-		95	-	100
50	100		90	-	100
40	95	-	100	85	100
28	80	-	100	72	100
20	60	-	100	55	100
10	35	-	90	30	100
5	20	-	75	18	85
2	12	-	50	10	65
1	10	-	40	8	52
0.425	7	-	33	7	43
0.075	4	-	20	4	35

Clayey Sand:

In addition to the CBR requirement, the clayey sand for sub-base shall comply with the following specification:-

Percentage passing 2mm Sieve:	Maximum 95
Percentage passing 0.075 mm Sieve	: Maximum 10 - Maximum 30
Uniformity coefficient:	Minimum 5
Plasticity Index	Minimum 5- Maximum 20

18.4.4 Setting Out Sub-base to line and level

The Contractor shall set out the road line and level at intervals of not more than 25 metres or such lesser intervals on horizontal and vertical curves as the Engineer may require, and sufficient to ensure that the levels of the sub-base are constructed within the specified tolerances and the minimum thickness ordered for the course. Reference pegs shall be provided clear off the road and at right angles to it from which the centre-line or level can be re-established at any time. These shall be maintained so long as they are needed by the Engineer to check the work.

All setting out shall be agreed by the Engineer before any sub-clause or base course work is commenced.

18.4.5 Laying and compacting natural material sub-base and base

The sub-base and base material shall be deposited in such quantity and spread in a uniform layer across the full width required, so that the final compacted thickness is nowhere less than shown upon the Drawings or ordered by the Engineer.

The compacted thickness of any layer laid, processed and compacted at one time shall not exceed 200mm and where a greater compacted thickness is required, the material shall be laid and processed in two or more layers.

The material shall be broken down so that the maximum size of any particle is not greater than specified. This may require a grid-clearer sheep-foot roller or a pulverizer and the Contractor shall allow for such processing in his rates.

Any oversize material which cannot be broken down to the required size shall be removed and disposed of as directed by the Engineer.

The layer shall then be scarified and water shall be uniformly mixed in, as directed by the Engineer. It shall be graded, Compacted to a dry density of at least 95% MDD (Heavy Compacted) and graded to final level.

The moisture content shall be adjusted so that the above minimum Compaction is obtained. Unless otherwise directed by the Engineer, the moisture content at the time of compaction shall be between 80 and 105% of the optimum Moisture Content (Heavy Compaction).

18.4.6 Tolerances

The Sub-base and base shall be constructed within the tolerance specified.

18.4.7 Surface levels of flexible pavement course and concrete pavement

The level of any point on the surface of each of the pavement course of the carriageway, the true level as specified, shall on completion of compaction, conform to that shown on the Drawings within the tolerances stated in column 3 of the following table.

Compliance with the requirement shall be checked, in respect of the surface of each course, either by levelling in relation to a survey Datum using pegs or pins, or if raised or flush kerbs or concrete marginal

haunches, concrete form, rails or bankettes have been laid, by use of a template or stretched line, using a datum the top surface of the levelling device after the profile or level of the latter have been approved by the Engineer. All longitudinal profile devices shall be laid true to line and level each within a tolerance of +/- 3mm the tolerance in level being measured over 8 metres. If this tolerance is exceeded the level and alignment shall be corrected, if necessary, by lifting and relaying or resetting.

In case of the base course and wearing course of flexible surfacing, and the surface of concrete pavements, the finished surface, in addition to conforming to the limits of tolerance from the true surface levels as specified above, shall when tested with a 3 metre straight edge placed parallel to the center line of the road, have no depression greater than the appropriate one stated in the following table:-

Measurements of level of tolerances shall be made while the material is still warm and rectification where necessary, carried out immediately; otherwise the Engineer may require the whole area involved to be removed to the full depth of the layer and reconstructed with fresh material.

Surface	Tolerance from true surface level	Maximum Depression tested with 3m straight edge placed on the surface parallel to the center line of carriageway
Sub-grade	+0-50mm	-

18.5.0 DRIVE WAYS AND PARKING AREAS

20.5.1 Excavations

Excavations to areas to receive bitumen macadam or other road or paved finish shall be carried out in a manner ensuring that excavations plant and vehicles do not cause shear failure more than 250mm in the sub-grade. Wheel loads and tyre pressures shall be limited and work shall be interrupted to let the sub-grade dry out as necessary to avoid such sub-grade failure.

If shear failure more than 250mm deep occurs in the sub-grade, the soil affected shall be excavated and replaced by soil filling as described.

If the soil develops highly elastic conditions as excavation approaches formation level, excavations shall be interrupted until the excess pore consequently disappears.

Before any further work is executed the formation level must be inspected and approved by the Engineer.

18.5.2 Compaction

The sub-grade shall be compacted by a smooth-wheeled roller of 8 to 10 tonnes weight or vibrating roller of minimum 1,300kg., or other approved plant. The number of coverages shall be at least 10 and there shall be a 50% overlap of successive coverages. If so instructed by the Engineer, water shall be added during compaction to obtain optimum water content. Filling shall be compacted as above but in maximum 200mm deep layers.

18.5.3 Sub-grade surface finish

The surface of the sub-grade shall be finished to the levels, falls and crossfalls shown on the Drawings within the following tolerances:-

- i). The level shall not be above and not more than 50mm below the level shown on the Drawings.
- ii). The falls shall be within 10% of the falls shown on the Drawings.
- iii). The smoothness shall be such that departures from a 3 metre straight edge laid in any direction shall not exceed 50mm and there shall be no ponding of water.

18.5.4 Coarse Aggregate

Coarse aggregate for the base shall be crushed stone or rock confirming to the following requirements:-

18.5.5 Sub-base

The material for use in the sub-base shall consist of crusher dust as described, or other approved material. It shall be placed in one layer of such thickness that when compacted it shall attain the finished thickness shown on the Drawings. The material shall be watered as necessary and compacted as described. The sub-base material shall have a CBR value (unsoaked) for not less than 25.

18.5.6 Base

The material for use in the basecourse shall consist of one layer of coarse aggregate as described of which the interstices are filled with fine material consisting either of crusher dust or a mixture of crusher fines. The proportions of crusher dust and crusher fines in the fine material shall be such as to obtain the maximum density of base course when compacted.

The procedure for construction shall be as follows: The coarse aggregate shall be placed in a layer of such thickness so as to obtain the required thickness after compaction. It shall then be compacted lightly until the Engineer is satisfied that a layer true to shape and level has been obtained. The fine material shall then be spread over the layer by hand mechanical means. The application of fine material shall be made gradually in successive layers not exceeding 25mm in thickness and each be worked into the voids in the coarse aggregate before the application of the succeeding layer. The fine material shall be laid as described and brushed into the

course aggregate and rolled and consolidated by an approved vibrating roller feed to the bottom of the layer.

Final compaction shall be by an 8-10 tonnes smooth-wheeled roller until there is no visible movement under the action of the roller and until the required tolerances are achieved. Water may be applied during final compaction subject to the Engineer's approval.

Compaction shall in any case achieve 100% maximum dry density in accordance with B.S. 1377.

18.5.7 Quarry waste

Quarry waste shall mean material to the same specification as crusher dust, except as follows:- ii). The material may have up to 35% of stones not larger than 38mm provided that the material passing the 5mm sieve is within the limits specified.

Quarry waste shall be clean and completely free from earth, organic or other foreign matter.

- i). The plasticity index taken on material passing the No. 36 sieve shall not exceed 16%

18.5.8 Basecourse finish

The surface of the base course shall be finished to the levels, falls and crossfalls shown on the Drawings subject to the following.

- i). The level shall be within + or - 12mm of the levels shown on the Drawings.
- ii). The falls shall be within 19% of the falls shown on the Drawings.
- iii). The smoothness shall be such that departures from a 3 metre straight edge laid in any direction shall not exceed 12mm..

The surface of the basecourse shall be inspected and approved by the Engineer before bitumen paving is commenced.

Immediately before applying the priming coat, the surface of the basecourse shall be brushed free from dust and loose stones. The material for the priming coat shall be a cutback of M.C.O. grade or other approved.

Approximately 30 minutes before applying the priming coat the surface of the basecourse should be made slightly damp by use of a water spray.

The priming coat shall be applied at a temperature of 100-150 degrees Fahrenheit at a rate of 0.60 litres per square meter.

After application of the primer graded premix of 30mm to 40mm compacted thickness shall be used, with a seal coat.

18.5.9 Bitumen macadam surfacing

A single course open graded premix of 30mm to 40mm compacted thickness shall be used, with a seal coat.

Course aggregate shall be crushed blacktrap with particles having a cubicle shape to the Engineer's approval and shall be washed free from dust.

The Coarse aggregate gradings shall be:-

Sieve Size	Percentage passing
19 mm	100
13 mm	60 - 100
10 mm	45 - 70
6 mm	30 - 50
4 mm	25 - 40
8 mm	15 - 25
200 mm	2 - 5

The binder shall be shellmac MC/RC2 or other approved. The percentage by weight of binder shall be 4.5%. Mixing shall be in an approved mixer and mixing shall proceed until the stone is evenly coated with binder. The temperature (at mixing) shall be within the following range:-

	Aggregate	Binder
Mixing Temperature	50° - 95° F	125° - 150° F

The laying temperature shall be not less than 20° F below the mixing temperature.

The mix shall be spread evenly over the primed surface and shall be thoroughly compacted by rolling with a minimum of 6 passes. A smooth-wheeled roller of not less than 5 tonnes weight and with rear wheel loading of 0.25 kg per square millimeter width shall be used.

18.5.10 **Rolling**

Any longitudinal joints shall be rolled first, after which rolling shall start longitudinally at the side and proceed towards the center of the carpet. Each pass of the roller shall overlap the preceding one by at least one half width of the rear wheel. Alternate passes of the roller shall be of varying length. Immediately following initial compaction, the surface shall be checked with a straight edge to ensure that it meets the surface finish requirements. Minor variations shall be corrected by rolling, but major imperfections shall be compacted by adding or taking away mix while it is still workable.

18.5.11 **Surface finish**

The surface of the bitumen macadam shall be finished to the levels, contours and slopes shown on the Drawings with the following tolerances:-

- i). The level shall be within + or - 6mm. of the level shown on the drawings.

- ii). The gradient shall be within 10% of the gradient shown on the drawings.
- iii). The smoothness shall be such that departures from a 3 metre straight edge laid in any direction shall not exceed 6mm.

18.5.12 Seal coat

The seal coat shall consist of precoated fines consisting of crushed blackstrap stone graded from 3mm to dust, or coarse sand. The binder shall consist of 4.5% by weight of MC/RC2. The seal coat shall be spread and brushed into the macadam surface at the rate of 180 square metres per tonne and compacted by rolling as for the macadam.

19.0 PLUMBING AND ENGINEERING INSTALLATIONS

19.0 PLUMBING AND ENGINEERING INSTALLATIONS

19.1.0 STANDARDS AND CODES OF PRACTICE

The requirements of the following British Standards and Codes of Practice shall be observed:-

19.1.1 British Standards

- | | | |
|----|------------------------------|--|
| a) | B.S. 416 | Cast Iron spigot and socket soil, waste and ventilating pipes (sand cast and spun) and fittings. |
| b) | B.S. 2871 part | Copper and Copper Alloy Tubes (for water, gas and sanitation) |
| c) | B.S. 864 part | Capillary and compression fittings of copper and copper alloy. |
| d) | B.S. 1184 | Copper and Copper Alloy Traps |
| e) | B.S. 4576 | Unplasticised P.V.C. rainwater goods. |
| f) | B.S. 3974 | Pipe supports. |
| g) | B.S. 1494 | Fixing accessories for building purposes (gutter bolts, pipe brackets) |
| h) | B.S. 1212 part 1+2 | Ball valves (excluding floats) |
| i) | B.S. 2456 | Floats for ball valves (plastic) for cold water. |
| k) | B.S. 1125 | W.C. flushing cisterns. |
| l) | B.S. 417 part 1+2 | Galvanised mild steel cisterns, covers, tanks and cylinders. |
| m) | B.S. 2760 | Pitch-impregnated fibre pipes and fittings. |
| n) | B.S. 1387 | Steel cubes and tubulars. |
| o) | B.S. 4514 | Unplasticised P.V.C. solid and ventilating pipe, fittings and accessories. |
| p) | B.S. 3505 | Unplasticised P.V.C. pipes for cold water services |
| q) | B.S. 143 and 1256 | Malleable cast iron and cast copper alloy, screwed pipe fittings. |
| r) | B.S. 78 part 2 and B.S. 1180 | Cast iron spigot and socket pipes (vertically cast) and spigot and socket fittings. |
| s) | B.S. 1010 part 1+2 | Draw-off taps and stop valves for water services. |

Codes of Practice

- | | | |
|----|----------|--|
| a) | C.P. 304 | Sanitary pipework above ground. |
| b) | C.P. 310 | Water supply |
| c) | C.P. 305 | Sanitary appliances. |
| d) | NOTE: | <ol style="list-style-type: none">01. The contractor's attention is drawn to Section "Q" of the Standard Method of Measurements.02. The whole of the work shall be executed by an approved licensed sub-contractor. |

19.2.0 PIPEWORK AND FITTINGS

Black steel and pipework up to 65 mm nominal bore shall be manufactured in accordance with B.S. 21. All fittings shall be of malleable iron and manufactured in accordance with B.S. 143.

Pipe joints shall be screwed and socketed and sufficient coupling and unions shall be allowed so that fittings can be disconnected without cutting the pipe. Running nipples and long screws shall not be permitted unless exceptionally approved by the architect.

All black steel pipework - 80 mm nominal bore up to 150 mm nominal bore, shall be manufactured to comply in all respects with the specifications for 65 mm pipe, except that screwed and bolted flanges shall replace union and couplings for the pointing of pipes to valves and other items of plant.

All flanges shall comply with the requirements of B.S. 10, to relevant classifications contained hereinafter.

19.2.1 Galvanised Steel Pipe

Galvanised steel pipe shall be manufactured to comply in all respects with the standards described for black steel pipework above.

Galvanised shall be carried out in accordance with the requirements of B.S. 1387 and 143 respectively.

19.2.2 Copper Tubing

All copper tubing shall be manufactured in accordance with B.S. 659 from C. 106 'Phosphorus De-oxidised Non-Arsenical Copper' in accordance with B.S. 1172.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings manufactured in accordance with B.S. 864.

Short copper connecting tubes between galvanised pipework and sanitary fittings shall not be used because of the risk of galvanic action.

If, as may occur in certain circumstances, it is not possible to make the connections in any other way than by the use of copper tubing, then a brass straight connector shall be positioned between the galvanised pipe and the copper tube in order to prevent direct contact.

19.2.3 Plastic Pipes

P.V.C. pipework and fittings for the use above ground in connection with internal building services shall be in the Terrain soil, waste and ventilation system to B.S. 4514 in modified PVC. The sub-contractor is referred to Product Catalogues in respect of Terrain Plastics Systems for the Building Industry before and after submission of tenders as no claims for want of knowledge will be entertained.

19.2.4 Cast Iron Pipework

Cast iron pipework and fittings for use above ground in connection with internal building services, shall be manufactured with spigot and socket joints of the weight required by the Local Authority and shall comply fully with the requirements of B.S. 416.

All joints on cast iron spigot and socket pipes shall be made with an approved cold caulking compound and so installed as to allow for any expansion or contraction which may take place.

All cast iron pipework, branches, tees, bends and other fittings shall be supplied complete with inspection covers for cleaning purposes. These inspection covers for cleaning purposes shall be included as part of the fittings and shall comply with the requirement of B.S. 416.

19.2.5 Pitch Fibre Pipework

Pitch fibre pipework and fittings for use in connection with external drainage services shall be manufactured in accordance with the requirements of B.S. 2760. Pipes shall be connected by means of purpose made tapered joints manufactured in accordance with B.S. 2760.

Until such time as the use of pitch impregnated fibre pipes is covered by Code of Practice, the jointing, laying and cutting of these pipes shall be carried out in accordance with the requirements of the notes under Appendix C of B.S. 2760.

19.2.6 Asbestos Cement Pressure Pipes

Where asbestos cement pressure pipes and fittings are used in connection with external, above ground or buried water services, they shall be manufactured in accordance with the requirements of B.S. 486.

The classification of these pipes falls into four classes A, B, C, and D respectively, and the class to be used shall depend upon the pressure conditions pertaining at site.

Where cast iron detachable joints are used for connecting pipes, the material shall comply with B.S. 1452 and be suitably protected with a non-toxic compound against corrosion.

When jointing components are made in any other material for which there is no B.S. Specification, then the materials used shall be of a quality not less than required by this standard.

Rubber jointing rings shall be used for sealing purposes and shall comply with the requirements of B.S.2494 except where they are likely to be contaminated by oil products, in which case the gaskets shall be manufactured in accordance with B.S. 3514.

19.3.0 VALVES

14.3.1 Draw-off and Stop Valves (up to 50 mm Nominal Bore)

Draw off taps and stop valves up to 50 mm nominal bore, unless otherwise stated or specified, for attachment or connection to sanitary fittings shall be manufactured in accordance with the requirements of B.S. 1010.

19.3.2 Gate Valves

All gate valves 80 mm nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S. 3464.

All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S. 1218.

All gate valves up to and including 65 mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all gate valves shall depend upon the pressure conditions pertaining to the Site of Works.

19.3.3 Globe Valves

All globe valves up to and including 65 mm nominal bore shall be of bronze construction in accordance with B.S. 2060.

All globe valves 80 mm nominal bore and above shall be of cast iron construction in accordance with the requirements of B.S. 3961.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the Site of Works.

19.3.4 Check or Non-return Valves

All check or non-return valves up to and including 65 mm nominal bore shall be of the swing check of bronze construction in accordance with B.S. 1953.

All check or non-return valves 80 mm nominal bore and above shall be of the swing check type of cast iron construction in accordance with the requirements of B.S. 4090.

The pressure classification of all check or non-return valves shall depend upon the pressure conditions pertaining to the Site of Works.

19.3.5 Ball Valves

All ball valves for use in connection with hot and cold water services shall be of the Portsmouth type in accordance with the requirements of B.S. 1212, constructed from bronze or other corrosion resistant materials. These valves fall into three pressure classification as follows:-

- | | | |
|----|-----------------|------------------|
| a) | Low Pressure | 3,538 b maximum |
| b) | Medium Pressure | 7,725 b maximum |
| c) | High pressure | 12,620 b maximum |

The pressure classification required for each ball valve will be designated in the description of its associated equipment contained in Part C of the Specification.

19.3.6 Manually Operated Mixing Valves

Mixing valves for shower fittings and other appliances being provided under the sub-contract works shall be manufactured in accordance with the requirements of B.S. 1415 from bronze or other corrosion resistant materials.

19.4.0 PIPE SUPPORTS

19.4.1 General

This sub-clause deals with pipe supports securing pipes to the structure of buildings for above ground application.

The variety and type of supports shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixings to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports to the maintenance of desired pipe falls and the restraining of pipe movements to a longitudinal axial direction only.

The sub-contractor shall supply and install all steelwork forking part of the pipe support assemblies and shall be responsible for making good any damage to building work associated with the pipe support installation.

The sub-contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection work commences.

19.4.2 Steel and Copper Pipes and Tubes

Pipe runs shall be secure by pipe clips connected to pipe hangars, wall brackets, or trapeze type supports. 'U' bolts shall not be used as a substitute for pipe clips without the prior approval of the engineer.

An approximate guide to the maximum permissible support spacings in metres for steel and copper pipes and tubes is given in the following table for horizontal runs:-

Size Nominal Bores	Copper Tube	Steel Tube
15 mm	1.25 m	2.0 m
20 mm	2.0 m	2.5 m
25 mm	2.0 m	2.5 m
32 mm	2.5 m	3.0 m
40 mm	2.5 m	3.0 m
50 mm	2.5 m	3.0 m
65 mm	3.0 m	3.5 m
80 mm	3.0 m	3.5 m
100 mm	3.0 m	4.0 m
125 mm	3.5 m	4.5 m
150 mm	3.5 m	5.5 m

The support spacings for vertical runs shall not exceed one and a half times the distance given for horizontal runs.

19.4.3 Cast Iron and Asbestos Cement Spigot and Socket Jointed Pipes

Cast iron and asbestos cement socketed pipes shall generally be supported at every socket joint by means of either holderbats secured rigidly to the structure or purpose made straps for attachment to rigid steel support brackets.

When holderbats are used, they shall conform to the requirements of B.S. 416.

Suitable anchors shall be provided at all changes of pipes direction junctions and tees, to counteract the effect of end thrust loads.

19.4.4 Asbestos Cement Pressure Pipes

Asbestos cement pressure pipes with either cast iron detachable joints or asbestos cement screw joints shall be supported and anchored on either of the joint. The joint shall remain free.

Pipe hangars and trappers type supporters shall not be suitable for the suspension of asbestos pressure pipes unless they are designed with suitable restrictions to prevent swinging while at the same time providing the necessary support requirements.

Within buildings, asbestos pressure pipes shall be carried out either on concrete supports or on rigidly fixed steel wall brackets.

Suitable anchors shall be provided at all changes of pipe direction, junctions, and tees to counteract the effect of end thrust loads.

19.4.5 Concrete and Pitch Fibre Pipes

These pipes shall NOT be used for above ground application.

19.4.6 Expansion Joints and Anchors

Where practicable, cold pipework systems shall be arranged with sufficient bends and changes for direction to absorb pipe expansion providing that the pipe stresses are contained within the working limits prescribed in the relevant B.S. specifications.

The sub-contractor shall pay particular care when supporting cast iron and asbestos cement pipes in order to ensure that settlement and building movements shall not break the pipe joints.

Where piping anchors are supplied, they shall be fixed to the main structure only. Details of all anchors design proposals shall be submitted to the architect for approval before erection commences. The sub-contractor when arranging his piping shall ensure that no expansion movements are transmitted directly to connections and flanges on pumps or other items of plant. The sub-contractor shall supply flexible joints to prevent vibrations and other movements being transmitted from pumps to the piping systems or vice-versa.

19.5.0 SANITARY APPLIANCES

All sanitary appliances supplied and installed as part of the sub-contract works shall comply with the general requirements of B.S. Code of Practice 305 and the particular requirements of the latest applicable B.S. Specifications.

19.6.0 GENERAL

'Fulbora' rainwater outlets shall be 100 mm and 150 mm diameter as manufactured by Fulbora Limited (UK) or other equal and approved.

The words "pipe" or "tube" shall be synonymous wherever used herein or in any of the contract documents. Pipe sizes stated herein are nominal bore.

Rates shall allow for holderbats at centres not exceeding 1000 mm, cutting and priming to concrete block or in-situ concrete walls and making good.

Rates for all tubing shall include for all joints in the running length.

Rates for galvanised mild steel tubing not exceeding 20 mm diameter shall include for all sockets, connectors, back-nuts, plugs, caps, elbows, bonds and made bends, made springs and made effects.

Rates for fittings on pipes shall include for all cutting and fitting of pipes to same.

The sizes stated of reducing fittings are those of tubes which will be attached to fittings and rates shall include for any additional socket reducers necessary to obtain the stated reduction should it be impossible to accomplish this with only one fitting.

Pipes shall be fixed at least 25 mm clear between socket and wall face. Cast iron holderbats shall be fixed at centres not more than 2 metres. Eared pipes must not be used.

All the plumbing and engineering installation shall be tested as instructed and any work not found satisfactory shall be made good at the contractor's expense.

Where tubing is laid in trenches, care shall be taken to ensure that fittings are not strained.

All tubing described as chased into walls shall have the wall face neatly out and chased, the tubing wedged and fixed and plastered over.

All formed bends shall be made so as to retain the full diameter of the pipe.

Cast iron pipes shall be jointed with asbestos yarn and calked with another lead or jointed with special jointing compound all to be approved.

All brasswork and fittings shall conform with the requirements of the standard mentioned above. Such fittings shall be either high or low pressure in accordance with the recommendations of the local authority. At commencement of the contract the contractor shall ask the architect for guidance on this point.

All sanitary fittings shall be properly cleaned, polished and left to the satisfaction of the architect on completion.

19.7.0 TESTING AND INSPECTION

14.7.1 Site Tests - Pipework Systems

After laying, jointing and anchoring the main shall be slowly and carefully charged with water, so that all air is expelled and allowed to stand full for three days before testing under pressure.

The test pressure shall be maintained by the pump for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main in that time. A general leakage of one gallon per 25 mm of diameter per 1.6 kilometer per 24 hours per head may be considered reasonable but any visible individual leak shall be repaired.

All water services pipe systems installed above ground shall be tested hydraulically for a period of one hour to not less than one and a half times the design working pressure.

If preferred, the sub-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 requested by the architect.

During the test, each branch and joint shall be examined carefully for leaks, and any defects revealed shall be made good by the subcontractor and the section re-tested.

The sub-contractor shall take all necessary precautions to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be repaired or replaced at the sub-contractor's expense.

19.8.0 SITE TEST - PERFORMANCE

Following satisfactory pressure tests on the pipework systems, operational tests shall be carried out in accordance with the relevant B.S. Codes 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 architect.

19.9.0 STERILIZATION OF WATER SYSTEMS

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

The sterilization procedure shall be carried out by the contractor/sub-contractor or specialists employed by the contractor/sub-contractor in accordance with the requirements of B.S. Code of Practice 310, Clause 409, to the approval of the architect

20.0 ELECTRICAL INSTALLATIONS

20.0 ELECTRICAL INSTALLATIONS

20.1.0 GENERAL

This specification is to be read in conjunction with the drawings which are issued with it. Bills of Quantities shall be the basis of all additions and omissions during the progress of the works.

All electrical work shall be carried out under close supervision of a licensed operative of an approved firm of registered Electrical Contractors.

All electrical work shall be executed in strict accordance with the latest editions of the British Standard and other Government Regulations.

The Main Contractor shall at all times co-ordinate his own work and that of all Sub Contractors with the of the Electrical Sub-Contractor.

Special care shall be executed to ensure that all necessary cable trenches are completed before other subsequent floors, paths etc. including the provision of cable ducts, chase, sinking and the like.

No patching up of floors, pavings, plasterwork etc will be permitted and where, work has to be rebuilt or re-executed due to lack of planning of Sub-Contractor's work, the Contractor will be held responsible for all costs and expenses arising there from.

NOTE: The Contractor's attention is drawn to section "R" of the Standard Method of Measurement.

20.2.0 STANDARD OF MATERIALS

Where the material and equipment are specifically described and named in the Specification followed by approved equal they are so named or described for the purpose of establishing a standard to which the Sub-Contractor shall adhere.

Should the Sub-Contractor install any material not specified here in before receiving approval from the proper authorities, the Engineer shall direct the Sub-Contractor to remove the material in question immediately. The fact that this material has been installed shall have bearing or influence on the decision by the Engineer.

All materials condemned by the Engineer as not approved for use, are to be removed from the premises and suitable materials delivered and installed in their place at the expense of the Sub-Contractor. All materials required for the works shall be new and the best of the respective kind and shall be of a uniform pattern.

20.3.0 WORKMANSHIP

The workmanship and method of installation shall conform to the best standard practice. All work shall be performed by a skilled tradesman and to the satisfaction of the Engineer. Helpers shall have qualified supervision.

Any work that does not in the opinion of the Engineer conform to the best standard practice will be removed and reinstated at the Sub-Contractor's expense.

Permits, Certificates or Licences must be held by all tradesmen for the type of work, in which they are involved where such permits, certificates or licences exist under Government Legislation.

20.4.0 PROCUREMENT OF MATERIALS

The Sub-Contractor is advised that no assistance can be given in the procurement or allotment of any materials or products to be used in and necessary for the construction and completion of the work. Sub-Contractors are warned that they must make their own arrangements for the supply of materials and /or products specified or required.

The Sub-Contractor may be called upon to show evidence that satisfactory arrangements have been made for the procurement of any or all materials and products required to complete the works. Copies of purchase order to suppliers may be requested.

The Sub-Contractor shall be responsible for all site and/or drawing measurements required for completion of quantities or materials required for the proper execution of the works.

No claim for extra payment will be considered on the ground of insufficient knowledge, inaccurate measurements or other errors on the part of the Sub-Contractor.

20.5.0 WORKING DRAWINGS

Before manufacture is begun the Sub-Contractor shall submit six copies of detailed drawings of all pieces of equipment including their components showing all pertinent information including sizes, capacities, construction details, etc., and as may be required to determine the suitability of the equipment for the approval of the Engineer. Approval of the detail drawings shall not relieve the Sub-Contractor of the full responsibility of errors or the necessity of checking the drawings himself or of furnishing the materials and equipment and performing the work required by the plans and specifications.

20.6.0 RECORD DRAWINGS

The Engineer will supply the Sub-Contractor with an extra set of white prints on which he shall clearly mark as the job progresses, all changes and deviations from the proposed installation so that the Architect at the completion the job, will have a record of the exact location of all piping and equipment.

The Sub-Contractor shall also furnish, within a reasonable time after the completion of the works and prior to the final payment being sanctioned, drawings and diagrams of the works completed and relating to the whole installation and plant.

These diagrams and drawings shall show the complete installation including sizes, runs and arrangements of the installation. The drawings shall be to a scale not less than 1:50 and shall include plan views and sections.

The drawings shall all details which may be useful in the operation, maintenance or subsequent modifications or extensions to the installation.

Three sets of diagrams and drawings shall be provided, all to the approval of the Engineer.

One coloured set of line diagrams relating to operating and maintenance instructions shall be framed and mounted in a suitable location.

20.7.0 REGULATIONS AND STANDARDS

All work executed by the Sub-Contractor shall comply with the current edition of the “Regulations” for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers and with the Regulations of the Local Electricity Authority.

Where the two sets of regulations appear to conflict, they shall be clarified with the Engineer. All materials used shall comply with relevant British Standard Specification.

20.8.0 SETTING OUT WORK

The Sub-Contractor at his own expenses, is to set out works and take all measurements and dimensions required for the erection of his materials on site, making any modifications or alterations in detail to the Engineer before proceeding and must allow in his Tender for all such modifications and for the provision of any sketches or drawings related thereto.

20.9.0 POSITIONS OF ELECTRICAL PLANT AND APPARATUS

The routes of cables and approximate positions of switchboards, etc., as shown on the drawings shall be assumed to be correct for purposes of Tendering, but the exact positions of all electrical Equipment and routes of cables must be agreed on site with the Engineer before any work is carried out.

20.10.0 M.C.B. DISTRIBUTION PANELS AND CONSUMER UNITS

All cases of M.C.B. panels and consumer units shall be constructed in heavy gauge sheet with hinged covers.

Removable undrilled gland plants shall be provided on the top and bottom of the cases. Miniature circuit breakers shall be enclosed in moulded plastic with tripping mechanism and chambers separated and sealed from the cable terminals.

The operating dolly shall be tripfree with a positive movement in both make and break position. Clear indication of the position of the handle shall be incorporated.

Removable undrilled gland plates shall be provided on the top and bottom of the cases. miniature circuit breakers shall be enclosed in moulded plastic with the tripping mechanism and arc chambers separated and sealed from the cable terminals.

The tripping mechanism shall be on inverse characteristic to prevent in temporary overloads and shall not be affected by normal variation in ambient temperature

The breakers shall be ground in distribution panels as specified in part 111 of this specification, all live metal being shrouded or concealed during normal used.

A locking plate shall be provided for each size of breaker. A complete list of circuit details on typed cartridge paper glued to stiff cardboards and covered with sheet of perspex, and held in position with four suitable fixings, shall be fitted to the inner face of the lids of each distribution panel. The appropriate M.C.B. ratings be state on the circuit chart against each circuit in use. Ivorine labels shall be secured to the insulation barriers in such a manner as to indicate the number of the circuit shown on the circuit chart.

Insulated barriers shall be fitted between phases, and neutrals in all boards, and shroud live parts.

Neutral cables shall be connected to the neutral bar in the same sequence as the phase cables are connected to the M.C.B's. This shall also apply to earth bars when installed.

20.11.0 FUSED SWITCHGEAR AND ISOLATORS

All fused switchgear and isolators whether mounted on machinery, walls or industrial panels shall conform to the requirement of B.S 861.1955 and where applicable to B.S 2510.

All contacts are to be fully shrouded and are to have a breaking capacity on manual operations as required by B.S 861, 1955.

Fuse links for fused switches are to be of high rupturing capacity cartridge type, conforming to B.S. 88.1952 category of duty 440v A.C.

Isolators shall be load braking/fault making isolators.

Fused switches and Isolators are to have separate metal enclosures. Mechanical interlocks are to be provided between the door and main switch operating mechanism so arranged that the door may not be opened with the switch in the "ON" position.

Similarly it shall not be possible to close the switch with the door open except that provision shall be made within the switch for authorized persons to defeat the mechanical interlock and close the switch with the door in the open position for test purposes. The "ON" and "OFF" positions of all switches and isolators shall be clearly indicated by a mechanical lag indicator or similar device. In T.P. & N. fused switch units, bolted neutral links are to be fitted.

20.12.0 CONDUITS AND CONDUIT RUNS

Conduit systems are to be installed so as to allow the loop in system of wiring.

All conduit shall be black rigid super high impact heavy gauged class "A" PVC in accordance with B.S. 2782 and I.E.E. Regulations B101 - 105 tests and as manufactured by Egatube Re: HIP or other approved equal to B.S. 4607; part 1970. No conduit less than 20mm. in diameter shall be used anywhere in this installation.

Conduit shall be installed in plaster work and floor screed.

except when run on wooden or metal surface when they will be installed surface supported with saddles every 600mm. Conduit run in chases shall be firmly held in position by means of substantial pipe hooks driven into wooden plugs.

The Sub-Contractor's attention is drawn to the necessity of keeping all conduits entirely separate from other piping services such as water and no circuit connections will be permitted between conduits and such pipes.

All conduits systems shall be arranged possible to be self-draining to switch boxes and conduit outlet points for fittings. The systems, when installed and

before wiring shall be kept plugged with well fitting plugs and when short conduit pieces are used as plugs, they shall be doubled over and tied firmly together with steel wire. Before wiring all conduit systems shall be carried out until the particular section of the conduit installation is complete in every respect.

The sets and beds in conduits runs are to be formed on site using appropriate size bending springs and all radii of bends must not be less than 2.5 times the outside diameter of the conduit. No solid or inspection bends, tees or elbows will be used.

Conduit connections shall either be by a demountable (screwed up) assembly or adhesive fixed and watertight by solution as Egaweld. The tube and fittings must be clean and free of all grease before applying the adhesive. When connections are made between conduit and switch boxes, circular or non-screwed boxes, care shall be taken that no rough edges of conduit stick out into the boxes.

Runs between drawn-in boxes are not to have more than two right angle bends or their equivalent. The Sub-Contractor may be required to demonstrate to the Engineers that wiring in any particular run is easily with drawable and the Sub-Contractor may, at no extra cost to the contract, be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6000mm, expansion couplings as manufactured by Egatube Ref: EEC shall be used at intervals of 6000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Structural Engineer shall be, obtained. The Sub-Contractor shall be responsible for marking the accurate position of all holes, chases etc., on site, or if the Engineer so direct, shall provide the main Contractor with dimensional drawings to enable him to mark out and form all holes and chases. Should the Sub-Contractor fail to inform the main Contractor of any inaccuracies in this respect they shall be rectified at the Sub-Contractor's expense.

Site, details of reinforced concrete or structural steel work and check from the builder's drawings the positions of walls, structural concrete and finishes. No reinforced concrete or steelwork may be drilled without first obtaining the written permission of the structural Engineer.

The drawings provided with these specifications indicate the appropriate positions only of points and switches, and it shall be the Sub-Contractor's responsibility to mark out and centre on the site the accurate positions where necessary in consultation with the Architect and the Engineer. The Sub-Contractor alone shall be responsible for the accuracy of the final positions.

20.13.0 CONDUIT BOXES AND ACCESSORIES

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern to B.S. 31 of the appropriate type of suit saddles being used or super high impact PVC manufactured to B.S. 4607: 1, 1970.

Small circular pattern boxes are to be used with conduits up to and including 25mm. outside diameter. Rectangular pattern adaptable boxes are to be used for conduits of 32mm outside diameter and larger. For drawing in of cables in exposed runs of conduit, standard pattern through boxes are to be used.

Boxes are to be not less than 50mm. deep and of such dimensions a will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

Outlet boxes for lighting fittings are to be of the loop-in type where conduit installation is concealed and the Sub-Contractor shall allow one such box per fitting, except where fluorescent fittings are specified when two such boxes per fitting shall be fitted flush with the ceiling and if necessary fitted with break joint rings. Pattresses shall be fitted where required to outlets on surface conduit runs.

Adaptable boxes are to be of P.V.C. or mild steel (of not less than 12 s.w.g.) and black enamelled or galvanised finish according to location. They shall be of square or oblong shape complete with lids secured by four 2 BA brass roundhead screws. No adaptable box shall be less than 75mm x 75mm x 50mm or larger than 300mm x 300mm x 75mm and shall be adequate in depth in relation to the size of conduit bushes.

20.14.0 LABELS

Labels fitted to switches and fuseboards:-

- i). Shall be Ivorine engraved black on white
- ii). Shall be secured by R.H. brass screws of same manufacture throughout.
- iii). Shall indicate on switches:-
 - a). Reference number of switch
 - b). Specified current rating
 - c). item of equipment controlled
- iv). Shall indicate on M.C.B. panels
 - a). Reference number
 - b). Type of board, i.e. lighting, sockets, etc.
 - c). Size of cable supplying panel
 - d). Where to isolate feeder cable
- v). Shall be generally not less than 75mm x 50mm.

20.5.0 EARTHING

The earthing of the installation shall comply with the following requirements:-

It shall be carried out in accordance with the appropriate sections of the current edition of the Regulations, for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers.

At all main distribution panels and main service positions a 25mm x 3mm minimum cross sectional area Copper tape shall be provided and all equipment including the lead sheath and armouring of cables, distribution boards and metal frames shall be bonded thereto.

The earth tape in Sub-Clause (ii) shall be connected by means of a copper tape or cable of suitable cross sectional area to an earth electrode which shall be a earth (see later sub-clause).

All tapes to be sort high conductivity copper, intinned except where otherwise specified and where run underground on or through walls, floors, etc., it shall be served with corrosion resisting tape or coated with corrosion compound and braided.

Where the earth electrode is located outside the building a removable test link shall be provided inside the building as near as possible to the point of entry to the tape, for isolating the earth electrode for testing purpose.

Earthing of sub-main equipment shall be deemed to be satisfactory where the sub-main cables are M.I.C.S. or conduit with separate earth wire, and the installation is carried out in accordance with the figure stated in the current edition of the I.E.E. Regulations.

Where an earth rod is specified (see Sub-Clause (iii) it shall be proprietary manufacture, solid hand drawn copper of 15mm diameter driven into the ground to a minimum depth of 3.6m. It shall be made up to 1.2m sections with internal screw and socket joints and fitted with hardened steel tip and driving cap.

Earth plates will not be permitted

Where an earth rod is used the earth resistance shall be tested in the manner described in the current edition of the I.E.E. Regulations, by the Sub-Contractor in the presence of the Engineer and the Sub-Contractor shall be responsible for the supply of all test equipment.

Where copper tape is fixed to the building structure it shall be by means of purpose made non-ferrous saddles which space the conductor away from the structure a minimum distance of 20mm. Fixings, shall be made using purpose made plugs. No fixings requiring holes to be drilled through the tape will be accepted.

Joints in copper tape shall be tinned before assembly rivetted with a minimum of two copper rivets and sweated solid.

Where holes are drilled in the earth tape for connection to items of equipment the effective cross sectional area regulations.

Bolts, nuts, and washers for any fixing to the earth tape must be non-ferrous material.

Attention is drawn to the need for the earthing metal parts of lighting fittings and for bonding ball joint suspension in lighting fittings.

20.16.0 CABLES AND FLEXIBLE CORDS

All cables used in this Sub-Contract shall be manufactured in accordance with the current appropriate British Standard Specification which are as follows:-

- a). Rubber Insulated Cables and Flexible Cords - B.S.S. 6500
- b). P.V.C. Insulated Cables and Flexible Cords - B.S.S. 6004
- c). P.V.C. Insulated Armoured Cables - B.S.S. 6346
- d). Butyl Rubber Insulated Cables - B.S.S. 610V

The successful Sub-Contractor will, at the Engineer discretion be required to submit samples of cables for the Engineer's approval; the Engineer reserves the right to call for the cables of an alternative manufacture without any extra cost being incurred.

Insulated cables shall be 500/100 Volt grade. No cables smaller than 1.5mm sq. shall be used unless shall be as detailed in later clauses. The colour of cables shall conform with the details stated in the "Cable Braid and insulation Colours" Clause.

20.7.0 ARMoured P.V.C INSULATED AND SHEATHED CABLES

Shall be 600/1000 volt grade manufactured to B.S. 6346:1969 with copper stranded conductors.

The wire armour of the cables shall be used wholly as an earth continuity conductor and the resistance not more than twice of the largest current carrying conductor of the cable.

P.V.C./S.W.A./P.V.C. cables shall be terminated using "Telecom" "B" type or approved equal glands and P.V.C. tapered sleeve shall be provided to shroud each glad.

Where cables rise from floor level to switchgear etc., they shall be protected by P.V.C. conduit, to a height of 600mm from finished floor level, whether the cable is run on the surface or recessed into the wall.

20.18.0 ROAD CROSSING DUCTS

Underground P.V.C. or pitch fibre ducts crossing the roads, shall be buried 500mm below ground level, and surrounded with 150mm layer of 1:3:6 concrete mix.

20.19.0 CABLES SUPPORTS, MARKERS AND TILES

All P.V.C./S.W.A./P.V.C. cables run inside the building shall be fixed in rising ducts or on ceilings by means of die cast cables hooks or clamps, of appropriate size to suit cables, fixed by studs and back nuts their channel sections.

Alternatively, fixing shall be by B.I.C.C. claw type cleating system with die-cast cleats and galvanized mild steel back straps or similar approved equal method.

For one or two cables run together the cleats shall be fixed a special channel section supports or backstraps described above which shall in turn be secured to walls or ceilings of ducts by rawbolts.

In excessively damp or corrosive atmospheric conditions special finishes may be required and the Sub-Contractor shall apply to the Engineer for further instructions before ordering cleats and channels for such areas.

The above type of hooks and clamps and channels of cleats and backstraps shall also be used for securing cables in vertical ducts.

Cables supports shall be fixed at 600mm maximum intervals, the supports being supplied and erected under this Sub-Contract. Saddles shall not be used for supporting cables nor any other type of fixing other than one of the two methods described above or other system which has been received prior to approval of the Engineer.

Cables are to be kept clear of all pipe work and the Sub-Contractors shall work in close liaison with other services Sub-Contractors.

The Sub-Contractor shall include for the provision of fixing of approved type coloured slip on cables end makers to indicate permanently the correct phase and neutral colours on all cable ends.

Provision shall be made for supplying and fixing approved non-corrosive metal cable makers to be attached to the outside of all P.V.C. / S.W.A. /P.V.C. cables at 15 intervals indicating cable side and distinction.

Where P.V.C. / S.W.A. / P.V.C. cables are run outside the building they shall be laid underground 750mm. deep with protecting concrete interlocking cover tiles laid over which shall be provided and laid under this Sub-Contractor. All necessary excavations and reinstatement of ground including sanding or trenches will be carried out by the Sub-Contractor, unless otherwise stated.

20.20.0 P.V.C. INSULATED CABLES

Shall be of non-braided type as C.M.A. reference 6491 x 600/1000/1000 volt grade cables, or equal approved.

P.V.C. cables shall conform to the details of the “Cables and Flexible Cords” and “Cables Braid and Insulation Colours” clauses.

20.21.0 HEAT RESISTING CABLES

Final connections to cookers, water heaters, etc., shall be made using butyl rubber insulated cable as C.M.A. reference 610V butyl1 (single core 600/1000 volt).

This type of cable shall be used in all instances where a temperature exceeding 100° F, but not exceeding 150°F is likely to be experienced be made using silicone rubber insulated cable or equal approved.

20.21.0 FLEXIBLE CORDS

Shall be in accordance with the “cable and flexible Cords” clause. No Cord shall be less than 24/0.2mm in size unless otherwise specified.

Circular white twin T.R.S. flex shall be used for plain pendant fittings up to 100 watts. For all types of lighting fittings the flexible cable shall be silicone rubber insulated.

No polythene insulated flexible cable shall be used in any lighting fitting or other appliance (see “Heat Resisting Cables” Clause 30).

20.23.0 CABLES ENDS AND PHASE COLOURS

All cable ends connected up in switchgear, M.C.B. panels etc., shall have the insulation carefully cut back and the ends sealed with Hellerman rubber slip on cable end makers.

The makers shall be of appropriate phase colorful switch and all other live feeds to the details of the “Cable Insulation Colours” clause. Bank cable with black end makers shall only be used for neutral cables.

15.24.0 CABLE INSULATION COLOURS

Unless otherwise stated in later clauses the insulation colours shall be in accordance with the following table.

Where other systems are installed the cable colours shall be in accordance with details stated in the appropriate clause.

20.25.0 ELECTRICAL INSTALLATIONS

SYSTEM INSULATION CABLE END MAKER

LIGHTING AND POWER

1). Main and Sub-Main

a). Phase Red Red

b). Neutral Black Black

2). Sub-Circuit Single phase

a). Phase Red Red

b). Neutral Black Black

20.26.0 SUB-CIRCUIT WIRING

For all lighting and sockets wiring shall be carried out in the “looping in” system and there shall be no joints whatsoever. No lighting circuits shall comprise more than 20 points when protected by 100A MCB. Cables with different cross-section area of copper shall not be used in combination.

Lighting circuits P.V.C. cable

- a). 1.5mm sq. for all lighting circuits indicated on the drawing. Power circuits P.V.C. Cable
- b). 2.5mm² for one, two or three 5 Amp sockets wired in parallel.
- c). 2.5.mm² for one 15 Amp socket.
- d). 2.5mm² for a maximum of ten switched 13 Amp sockets wired from a 30 Amp fuseway.

The wiring sizes for lighting circuits and sockets are shown on the drawings. In such cases, the sizes shown on the drawings shall prevail over the sizes specified.

Wiring sizes for other appliances shall be as shown on the drawing or specified in later clauses of this specification.

20.27.0 SPACE FACTOR

The maximum number of cables that may be accommodated in a given size of conduit or trunking or duct is not to exceed the number in Tables B.5 and B.6 or

as stated in Regulation B91, B.117 and 118 of the I.E.E Regulations whichever is appropriate.

20.28.0 INSULATION

The insulation resistance to earth and between poles of the whole wiring system, fittings and lumps, shall not be less than the requirements of the latest edition of the I.E.E. Regulations. Complex tests shall be made on all circuits by the Sub-Contractor before the installations are handed over.

A report of all tests shall be furnished by the Sub-Contractor to the Engineer. The Engineer will then check test with his own instruments if necessary.

20.29.0 LIGHTING SWITCHES

These shall be mounted flush with the walls, shall be contained in steel or alloy boxes and shall be of the gangs, ratings and type shown in the drawings. They shall be as manufactured by M.K. Electrical Ltd., other equal and approved to B.S. 3676.1963.

20.30.0 SOCKETS AND SWITCHED SOCKETS

These shall be flush pattern in steel box and shall be of the gangs and type specified in the drawings.

They shall be 13 - amp., 3-pin, shuttered, switched and as manufactured by "M.K. Electrical Co. Ltd. or other approved equal to B.S. 1363.1947.

20.31.0 FUSED SPUR BOXES

These shall be flush, D.P. switched as in steel box of type and make specified in the drawings complete with pilot light and as manufactured by "M.K. Electrical Company Ltd." or other approved equal to B.S. 1953.

20.32.0 COOKER OUTLETS

These shall be flush mounted with 13-A switched socket outlet and the other for the cooker.

The cooker control units shall be as manufactured by "M.K. Electric Company Ltd.," other approved equal to B.S. 4177: 1967.

20.33.0 CONNECTORS

Shall be as specified in the drawings and of appropriate rating. These shall be fitted at all conduit box lighting point outlets for jointing of looped P.V.C. cables of specified quality.

20.34.0 LAMP HOLDERS

Shall be of the extra H.O. skirted pattern and shall be provided for every specified lighting fitting and shall be B.C., E.S. or G.E.S. as required. All E.S. and G.E.S. holders shall be heavy brass type (except for plain pendants where reinforced bakelite type shall be used). The screwed cap of the E.S. and G.E.S. holders shall be connected to the neutral.

Where lamp holders are supported by flexible cable, the holders shall have "cord grip" arrangements and in the case of metal shades earthing screws shall be provided on each of the folders.

The Sub-Contractor must order the appropriate type of holder when ordering lighting fittings, to ensure that the correct types of holders are provided irrespective of the type normally supplied by the manufacturers.

20.35.0 LAMPS

All lamps shall be suitable for normal stated supply voltage and the number and sizes of lamps detailed on the drawings shall be supplied and fixed. The Sub-Contractor must verify the actual supply voltage with the supply authority before ordering the lamps.

Tungsten filament lamps shall be manufactured in accordance with B.S.S. 161 for general service lamps and B.S.S. 565 for lamps other than general services. Tubular fluorescent lamps shall comply with B.S.S. 1853.

Pearl lamps shall be used in all fittings unless otherwise specified.

20.36.0 TELEPHONE CONNECTION FACILITIES

The Sub-Contractor shall supply and install flush telephone outlets as manufactured by M.K. Electric Co. Ltd. or approved equal and flush galvanised steel telephone entry boxes (T.E.B.) for UTL cables.

The Sub-Contractor shall run 25mm. gauge PVC conduits to link every telephone outlet to its nearest T.E.B. The conduits shall link it from the top to avoid rain water. Sufficient draw wires shall be left in all conduits, accessible at both the outlet and the T.E.B.

20.37.0 AERIAL CONNECTION FACILITIES

The Sub-Contractor shall supply and install flush T.V. coaxial outlet boxes (ACB) by 25mm heavy gauge conduit. A.C.B. 's shall be mounted 300mm from the highest ceiling level of the unit, and the conduit shall link it from the top to avoid rain water.

Sufficient draw wires shall be left, accessible at both ends of the conduit.

20.38.0 LIGHTNING PROTECTION SYSTEM

The Sub-Contractor shall supply and install roof air termination of (20 x 3)mm copper tape fixed on the roof ridge tiles or wall top ends, with purpose made clamps of the right size spaced with a distance of not more than 1.2m run of the tape. This distance shall be decreased where necessary to obtain the approved rigidity.

The lightning arresters shall be bonded to the copper tape and firmly fixed on the roof to approval.

The down conductors above test clamps shall be 70mm² copper conductors in 25mm super high impact heavy gauge column concealed conduits. They shall be bonded to the air termination tapes at approved positions. They shall drop along the vertical lines through approved positions and be connected to earth test clamps mounted 2500mm above ground level.

Apart from down conductors and conduits, all the above installation material and fittings shall be purpose made as manufactured by Furse or approved equal.

The down conductors between the earth test camps and earth electrode shall be two number 35mm² copper conductors in parallel. Each shall run in an approved 10mm minimum internal diameter

supper high impact conduit of 26mm minimum wall thickness by IEC ltd. or any recognized manufacturer. These shall be concealed in builder's column, but between the comn and manhole, the sub-contractor shall surround the same by 50mm layer of 1:2:4 cement, sand and 12mm aggregate mixture.

The two down conductors shall be bonded to earth electrode, and connected to test clamp.

20.39.0 LIGHTING FITTINGS

This Sub-Contract shall include for the provision, handling charges, taking the delivery, safe storage, wiring (including internal wiring) assembling and erecting of all lighting fittings shown on the drawings.

All fittings and pendants shall be fixed to conduit boxes with brass R/H screws. These to be in line with metal finish of fittings. The lighting fittings are detailed for the purpose of establishing a high standard of finish and under no circumstances will substitute fittings be permitted.

Incase of rectangular shaped ceiling fittings, the extreme ends of the fittings shall be secured to suitable support n addition to the central conduit box fittings. Supports shall be provided and fixed by the Sub-Contractor.

The whole of the work of each lighting fittings shall be effectively bonded to earth. In the case of ball and/or knuckle joints short lengths of flexible cable shall be provided, bonded to the metal work on either side of the joints. If the above provisions are not made by the manufacturers, the Sub-Contractor shall include cost of additional work necessary in his tender. See "Flexible Cords for details of internal wiring of lighting fittings. Minimum size of internal wiring shall be 20/0.20mm (23/0067). Each lighting fitting shall be provided with number, type and size of lamps as detailed on the drawings. It is to be noted that some fittings are suspended as shown on the drawings.

20.40.0 POSITIONS OF POINTS AND SWITCHES

Although the appropriate positions of all points are shown on the drawings enquiry shall be made as to the exact positions of all M.C.B. panels, lighting points, socket outlets etc., before work is actually commenced. The Sub-Contractor must approach the Architect with regard to the final layout of all lights on the ceiling and walls.

Where two or more points are shown adjacent to each other on the drawings, e.g. socket and telephone outlet, they shall be lined up vertically or horizontally on the center lines of the units.

Normally the units shall be lined up on vertical centre lines, but where it is necessary to mount units at low level they shall be line up horizontally.

The Sub-Contractor must consult with the Engineer in liaison with the clerk of works, or the General Foreman on site regarding the positions of all points

before fixing any conduits etc. the Sub-Contractor shall be responsible for all alterations made necessary by the non-compliance with the clause.

20.41.0 **STREET/SECURITY LIGHTING COLUMNS**

These shall be mild steel conforming to BS. 1840:1952 and fabricated to Ministry of works design and specification.

The column shall be at a minimum of 225mm in the ground on 75mm thick concrete foundations and the pole up to 6" shall be surrounded with concrete. The top bracket and plain section of the columns shall be common to and interchangeable with all brackets with maximum mismatching tolerance of 3mm between any pole and brackets. After manufacture and before erection the columns shall be treated with an approved mordant solution which shall be washed off and the whole allowed to dry. Thereafter, the columns shall be painted with one undercoat and two coats of gloss paint to an approved colour. All columns shall be complete with fused cut-outs type MC 040 SL. Manufactured by Lucy Oxford or equivalent.

20.42.0 **TIMING CONTROL SWITCH**

These shall be installed where shown on the drawings. Photocell timing control circuits which will operate 'on' with a specified level of darkness and 'off' with a given level of light. The initial adjustment will be done with approval of the Electrical Engineer.

20.43.0 **WIRING SYSTEM FOR STREETLIGHTING**

Cables shall be 4mm² PVC/SWA/PVC., 2-core, 3-core and 4-core as indicated on the drawings, and shall be laid in a cable trench 450mm deep along the road sides and 600mm deep across the roads and 900mm away from the road kerb or 1500mm away from the edges of

the road. 'Loop-in' and 'loop-out' arrangements shall be used at every pole. Wiring to the lanterns on each pole shall be with 1.5mm² PVC protected by 5A cartridge fuse. Cables across the roads and at the entrance of the plots shall be laid in ducts. No underground joints shall be permitted.

20.44.0 **DUCTS**

Ducts for the road crossing and the entrance of the plots shall be of concrete pipe jointed in a approved manner, with an internal diameter of not less than 100mm. The ducts shall be laid at least 600mm below the finished road level on a compact bed of murrum at least 50mm thick.

20.45.0 **METAL CONTROL PILLAR**

These shall be metal clad and fabricated to M.O.W. design and specification. The Sub-Contractor shall supply, install, test and commission all control pillars including supplying, fixing connecting switchgears as detailed on the appropriate drawings.

20.46.0 **CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER**

Current operated earth leakage circuit breaker shall conform to B.S. 4293:63 rated at 240 volts D.P. 50 cycles A.C. Mains.

The breaker shall be provided with test switch and fitted in weather proof enclosure for surface mounting. The rated load current and earth fault operating current shall be as specified in the drawings. These shall be as manufactured by Crabtree, Siemens or other equal and approved.

20.47.0 M.V. SWITCHBOARD AND SWICHGEAR

The switchboards shall be manufactured in accordance with B.S. 162 which co-ordinates the requirements for electrical power switchgear and associated apparatus. It is not intended that this B.S. should cover the requirements for specific apparatus for which separate British Standard exist. All equipment and material used in the switchboard shall be in accordance with the appropriate British Standard.

The switchboard shall comprise the equipment shown on the drawings together with all current transformers, auxiliary fuses,

labels small wiring and interconnections necessary for the satisfactory operation of the switchboard.

Switchboard shall be of the flush fronted, enclosed, metal clad type with full front or rear access as called for in the particular specification, suitable for indoor use, sectionalized as necessary to facilitate is to be approximate 2.0 metres.

A suitable connection chamber containing all field terminals shall be provided at the top or button of the switchboard as appropriate.

Before manufacture, the sub-contractor shall submit to the consulting engineer for approval of detailed drawings showing the layout construction and connection of the switchboard.

All bus-bars and bus-bar connections shall consist of high conductivity copper and be provided in accordance with B.S. 158 and B.S. 159. The bus-bars shall be clearly marked with the appropriate phase and neutral colours which should be red, yellow, blue for the phases and black for the neutral. The bus-bars shall be so arranged in the switchboard that extensions to the left and right may be made in the future should the need arise.

Small wiring, which be neatly arranged and cleated, shall be executed in accordance with B.S. 158 and the insulation of the wiring shall be coloured according to the phase or neutral connection.

Switches and fuse switches, shall be in strict accordance with B.S. 861 Class 2 Switches. Means of locking the switch in the "OFF" position shall provided.

All fuseswitches shall comply with B.S. 3185 and shall have a fault rating at least equal to the fault rating of switchboard in which they are installed. Cartridge fuse links to B.S. 88 category A.C. 46 Class Q1 and fusing factor not exceeding 1.5 shall be supplied with each fused switch.

Mounting arrangements shall be such that individual complete fuse switches may be disconnected and withdrawn when necessary without extensive dismantling work. When switches are arranged in their formation all necessary horizontal and vertical barriers shall be provided to ensure segregation from adjacent units. Means of locking the switch in the "OFF" position shall e provided.

20.48.0 STEEL CONDUITS AND STEEL TRUNKING

Conduits shall be of heavy gauge class Welded to British Standard specification B.S. 31. In no case will conduit smaller than 20mm diameter be used on the works. Conduits installed within buildings shall be black enameled finish except where specified otherwise where installed externally or in damp conditions they shall be galvanized. Conduit fittings, accessories or equipment used in conjunction with galvanized conduits shall also be in galvanized or otherwise as approved by the service engineer.

Metal trunking shall be fabricated from mild steel of not less than 18 swg. All sections of trunking shall be rigidly fixed together and attached to the framework or fabric or the building at intervals of not less than 1.2m. Joint in trunking shall not overhang points by more than 0.5m.

All trunking shall be made electrically continuous by means of 25 x 3mm copper links across joint and where the trunking is galvanised, the links shall be made by galvanized flat iron strips.

All trunking fittings (i.e. bends, tee, etc) shall leave the main trough completely clear of obstructions and continuously open except through walls and floors at which points suitable fire resisting barriers shall be provided as may be necessary. The inner edge of bends and tees shall be chamfered cables larger than 35mm² are employed.

Where trunking passes through ceilings and walls the cover shall be solidly fixed to 150mm either side of ceilings and floors and 50mm either side of walls.

Screws and bolts securing covers to trunking or section of covers together shall be arranged so that damage to cables cannot occur either when fixing covers or when installing cables in the trough.

Where trunking is used to connect switchgear or fuseboards, such connections shall be made by trunking fittings manufactured for this purpose and not multiple conduit couplings.

Where vertical sections of trunking are used which exceed 4.5m in length, staggered tie off points shall be provided at 4.5m intervals to support the weight of cables.

Unless otherwise stated, all trunking system shall be painted as for conduit.

Where a wiring system incorporates galvanized conduit and trunking, the trunking shall be deemed to be galvanized unless specified otherwise.

The number of cables to be installed in trunking shall be such as to permit easy drawing in without damage to the cables, and shall in no circumstances be such space factor of 45% is exceeded.

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various

lengths so that they butt at the socketed joints. The internal edges conduit and all fittings shall be smooth, free from burrs and other defects. Oil and any other insulating substance shall be removed from the screw threads. Where conduits terminate in fusegear, distribution boards, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male

brass bushes, compression washers and sockets. All exposed threads and abrasions shall be painted using an oil paint for black enamelled tubing and galvanised paint for galvanised tubing immediately after the conduits are erected. All bends and sets shall be made cold without altering the section of the conduit. The inner radius of the bend shall not be less than four (4) times the outside diameter of the conduit. Not more than two right angle bends will be permitted without the inner-position of a draw-in-box. Where straight runs of conduit are installed, draw-in- boxes shall be provided at distances not exceeding 15m. No tees, elbows, sleeves, either of inspection or soil type, will be permitted.

Conduit shall be swabbed out prior to drawing in cables, and they shall be laid so as to drain off all condensed moisture without injury to end connections.

Conduits and trunking shall be run at least 150mm clear of hot water steam pipes, and at least 75mm clear of cold water and other services unless otherwise approved by the services Engineer.

All boxes shall conform to B.S. 31, to be of malleable iron, and black enamelled or galvanised accordingly to the type of conduit specified. All accessory boxes shall have threaded brass inserts.

Box lids where required shall be heavy gauge metal, secured by means of zinc plated or cadmium plated steel screw.

All adaptable boxes and lids of the same size shall be interchangeable.

Boxes used on surface work are to be taped or drilled to line up with the conduit fixed in distance type saddles allowing clearance between the conduit and wall without the need for setting the conduit.

Where used in conjunction with mineral insulated copper sheathed cable, galvanised boxes shall be painted after erection.

Draw-in boxes in the floors are generally to be avoided but where they are essential they must be grouped in positions approved by the services engineer and covered and by suitable floor traps, with non-ferrous trays and covers.

The floor trap covers are to be recessed and filled in with a material to match the surface.

The Sub-Contractor must take full responsibility for the filling in of all covers, but the filling in materials will be supplied and the filling carried out by the Main Building Contractor.

Where buried in the ground outside the building the whole of the buried conduit is to be painted with two coats of approved bitumastic composition before covering up.

Where run on the surface, unpainted fittings and joints shall be painted with two coats of oil bound enamel applied to rust and grease free metal work.

20.49.0 **APPLYING FOR AND FOLLOWING UP UEDCL POWER SUPPLY**

The Sub-Contractor shall supply for and follow up UEDCL's power supply. He shall make sure there is power up to every meter box on every site before the completion date.

The Electrical Engineer may help in applying only.

20.50.0 **TESTING ON SITE**

The sub-contractor shall conduit during and at the completion of the installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings issued by the I.E.E of Great Britain, the Government Electrical Specification and the Electric supply Company's By-Laws.

Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.

Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that each earth pin is bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuit.

Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation. Triplicate copies of the results of the above tests shall be provided within 14 days of the witnessed tests and the sub-contractor will be required to issue to the service engineer the requisite Certificate upon completion as required by the regulations referred to above.

Any faults; defects. Of omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections of tests shall be rectified by the sub-contractor at his own expense.

The sub-contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the services engineer to enable him to carry out such tests as he may require.

The sub-contractor shall generally attend on other contractors employed on the project and carry out such electrical tests as may be necessary.

The Sub-contractor shall test to the services engineer's approval and as specified elsewhere in this specification or in standards and regulations already referred to, all equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and settling to work.

Where such equipment, etc., forms part of or is connected to a system whether primarily of n electrical nature or otherwise (e.g. air conditioning system) the sub-contractor shall attend on and assist in balancing, regulations testing and commissioning, or if primarily an electrical or other system forming part of

the works, shall balance, regulate, test and commission the system to the service engineer's approval.

21.0 SOLAR INSTALLATIONS

21.0 SOLAR INSTALLATIONS

21.1.0 EXTENT OF WORKS

The contract works shall comprise the supply to site, storage, replacement of breakage, hoisting, cleaning, installations, connection, testing, commissioning and guarantee and maintenance during defects liability period of the solar electrical installation services as described in this specification and on contract drawings and to the satisfaction of the Engineer and Architect.

21.2.0 MODULE SUPPORTING STRUCTURES

Each module supporting structure shall be made of pure aluminium parts.

All these aluminium parts shall be jointed to approval, and the structure shall be able to withstand 25kg. weight or three times, the weight of the installed module, whichever is heavier.

The module shall be supported at 15° angle to allow self cleansing.

The structure (module) shall be installed at any suitable position of the roof, determined on site. The tenderer must allow for this flexibility

21.3.0 SOLAR MODULES

Each solar module shall be manufactured to give a minimum of 40 watts peak power, and be capable of charging 12-volt 100AH battery through a charge controller.

Each module shall have sufficient means of providing shock resistance, and overheating due to localised shading.

21.4.0 BATTERY AND CONTROL UNIT BOXES

Battery boxes and electronic control unit boxes shall be made from 20mm. thick camphor wood, or the approved equivalent, with three layers of varnishing. Sufficient ventilation shall be provided to approval.

The whole top part of the box shall be hinged and lockable with cover of the same wood material.

Each internal dimension of each type of box shall be 100mm. longer than that of the battery itself.

Boxes shall be supported by horizontal and parallel wall mounted steel bars provided by the builder.

Each box shall have 4 No. semi-circular sandles at the bottom for this bar supporting.

Battery boxes shall be installed 100mm. away from control unit boxes.

Jointing and finishing of all boxes shall be done to approval.

21.5.0 BATTERIES

Every battery shall be 12 volt deep cycle maintenance free photo voltaic type lead acid, capable of storing 100 Amp-hours and manufactured to the relevant British or Kenya Standards. The battery shall be capable of being charged by a 40 watt peak power solar module, and shall be completely maintenance free.

21.6.0 CHARGE CONTROLLER

All charge controllers shall prevent any damage to the batteries. The controllers shall consist of series relay battery charge regulator, with low voltage load disconnect, a load fuse and status light indicator.

Each charge controller shall provide a minimum of the following functions;

- a). Charge regulation;
- b). Maximum module usage;
- c). Current compensated low voltage load disconnect;
- d). Load fuse;
- e). Status lights;
- f). Input noise suppression;
- g). Reverse leakage protection;
- h). Lightning protection;
- i). Central wiring.

21.7.0 LIGHT FITTINGS

Ceiling suspended light fittings shall be installed, by means of chains supported by holes in metal or timber purlins. It shall be the sub-contractor's responsibility to drill these holes. These shall be connected to a ceiling box by flexible cord. Each fitting shall have its own home made lampshade supplied by the client. The tenderer must allow in this price for the fitting, collection, transportation and installation of the lampshade.

21.8.0 INSTALLATIONS DETAILS

Modules, batteries and control units shall be interconnected by 10mm squared single core copper cables installed in waterproof terminated flexible 25mm steel conduits. All conductor terminations shall be done by means of purpose made copper terminals of the right size, to approval.

Flexible steel conduits shall be fixed on purlins and walls by means of stainless steel sandles, spaced at 500mm intervals. Steel conduits shall hide all cables completely.

All sub-circuit wiring shall be done by means of 2.5mm squared single core copper cables, installed in white P.V.C. (25 X 12) mm section mini-trucking along and through the walls, and steel conduits along the Purlins (i.e. for ceiling fittings only).

3 No. 15 Amp switches shall be installed (mounted) inside the control unit, for isolating the load, battery and module respectively.

No two or more switches and no two or more lighting fittings shall share one 2.5mm squared conductor, unless otherwise stated in the contract drawings.

The sub-contractor shall provide approved means of connecting all the load conductors to their 15 Amp switch.

21.9.0 CONDUITS, CABLES AND SWITCHES

Conduits, cables, switches and any other part of the electrical installations, shall meet the requirements given in general specifications (section 2 of this specifications).

21.10.0 RECORD DRAWINGS, MANUALS, INSTRUCTIONS AND TRAINING

The Sub-Contractor shall produce three accurate sets of drawings, detailing all the final solar electrical installations and manuals for maintaining and using the modules, batteries, charge controllers, lighting fittings and all other parts of the installations. He shall also train two persons in the materials suppliers' workshop. The training course shall cover maintenance of all the provided solar installations. The tenderer must state the training period.

SECTION VII – BILLS OF QUANTITIES



KENYA REINSURANCE CORPORATION LTD (KENYA RE)

Standard Bidding Document

for the

Procurement of Works

VOLUME 2 OF 4

BIDDING DOCUMENT

Subject of Procurement: **PROPOSED FITOUT OF KENYA REINSURANCE CORPORATION LTD OFFICES ON FIRST FLOOR LEVEL , REDSTONE HOUSE, PLOT 07 BANDALI RISE, KAMPALA, UGANDA**

Date of Issue: **MAY, 2021**

DOCUMENTS SUMMARY PAGE

<u>VOL NO.</u>	<u>DESCRIPTION</u>
Vol 1 of 4	Bidding Procedures, Employer's requirements, Conditions of Contract and Contract forms. Comprising:- Bidding Procedures Employer's Requirements Conditions of Contract Contract Forms
Vol 2 of 4	Bills of Quantities; Comprising:- Preambles to Bills of Quantities Bills of Quantities for Building works & Associated Electrical and Mechanical Installations
Vol 3 of 4	Technical Drawings Architectural, Electrical and Mechanical Drawings
Vol 4 of 4	Specifications for the Works; Comprising:- General Specifications for the Works

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BILL NO. 2 - PRELIMINARIES		
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BILL NO. 4 - ELECTRICAL INSTALLATIONS		
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BILL NO.1

CONDITIONS OF CONTRACT

Item	Description	US\$	
A	<p style="text-align: center;"><u>BILL No 1</u></p> <p style="text-align: center;"><u>CONDITIONS OF CONTRACT</u></p> <p><u>Pricing of Items of Conditions of Contract and Preliminaries</u></p> <p>Wherever in these Bills No 1 & 2 the Contractor does not insert his price against an item, the value of such items shall be held to be included in his rates for all other items in the following Bills of Quantities.</p>		
B	<p><u>Definition of terms</u></p> <p>(i) <u>Employer.</u> The term “Employer” wherever used hereinafter and in all contract documents shall have the same meaning as defined in the Conditions of Contract and Contract Data.</p> <p>(ii) <u>Contractor.</u> The term “Contractor” wherever used hereinafter and in all contract documents shall have the same meaning as defined in the Conditions of Contract and Contract Data.</p> <p>(iii) The Name “Project Manager” or “Architect” or “Engineer” or “Quantity Surveyor” shall have the same meaning as defined in the Conditions of Contract and Contract Data”.</p> <p>(iv) <u>Site:</u> The site of the proposed works are ON FIRST FLOOR LEVEL OF REDSTONE HOUSE, PLOT 07 BANDALI RISE, KAMPALA, UGANDA</p> <p>The Contractor is recommended to visit the sites and he shall be deemed to have acquainted himself therewith as to the nature and position and means of access, etc. and no claim in this connection shall be allowed.</p> <p>No claims will be allowed for travelling or other expenses, which may be incurred by the Contractor in visiting the Site for the Bid of the Works.</p>		
	TOTAL CARRIED TO SUMMARY		

Item	Description	US\$													
A	<p><u>SCOPE OF CONTRACT</u></p> <p>1.1 The works to be carried out comprises construction and completion of the following works: -</p> <table border="1"> <thead> <tr> <th>ITEM NO.</th> <th>DESCRIPTION</th> <th>UNIT</th> <th>AREA</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Fit - Out of Kenya Reinsurance Offices on First Floor Level</td> <td>SM</td> <td>152</td> </tr> <tr> <td colspan="2">TOTAL</td> <td>SM</td> <td>152</td> </tr> </tbody> </table>	ITEM NO.	DESCRIPTION	UNIT	AREA	1	Fit - Out of Kenya Reinsurance Offices on First Floor Level	SM	152	TOTAL		SM	152		
ITEM NO.	DESCRIPTION	UNIT	AREA												
1	Fit - Out of Kenya Reinsurance Offices on First Floor Level	SM	152												
TOTAL		SM	152												
B	<p><u>PROGRAMME OF THE WORKS</u></p> <p>The contractor is expected to submit together with his bid, a detailed programme, showing how he intends to carry out the works to conform to the bid period offered in the Form of Bid. The programme shall be updated in accordance with the Conditions of Contract and the Contract Data.</p>														
C	<p><u>FORM OF CONTRACT AGREEMENT</u></p> <p>The form of contract under which terms the Contractor will be required to enter into a contract with the Employer is contained in Volume 1 of 4 of the Bidding Documents, Part 3, Sections 7, 8 and 9.</p>														
TOTAL CARRIED TO SUMMARY															

CONDITIONS OF CONTRACT

Item	Description	US\$	
	<p>If the Contractor considers that compliance with any of the Conditions of Contract as particularly amended or qualified by the Contract Data and of which headings are set out hereunder involve expenses to him which are not included elsewhere in his prices, he shall set down opposite any such condition the value he attaches thereto:</p> <p><u>CONTRACT PARTICULARS</u></p> <p><u>CLAUSES</u></p> <p>A. GENERAL</p> <p>A 1. Definitions</p> <p>B 2. Interpretation</p> <p>C 3. Language and Law</p> <p>D 4. Project Manager's Decisions</p> <p>E 5. Delegation</p> <p>F 6. Communications</p> <p>G 7. Subcontracting</p> <p>H 8. Other Contractors</p> <p>I 9. Works</p> <p>J 10. Safety and Temporary works</p> <p>K 11. Discoveries</p> <p>L 12. Work Programme</p> <p>M 13. Possession of the Site</p> <p>N 14. Access to the Site</p> <p>O 15. Instructions.</p> <p>P 16. Extension or Acceleration of Completion Date</p> <p>Q 17. Management Meetings</p> <p>R 18. Early Warning</p> <p>S 19. Defects</p> <p>T 20. Bills of Quantities</p> <p>U 21. Variations</p> <p>V 22. Payment Certificates, Currency of Payments and Advance Payments</p> <p>W 23. Compensation events</p>		
	TOTAL CARRIED TO SUMMARY		

CONDITIONS OF CONTRACT

Item	Description		US\$	
A	24.	Compensation Events		
B	25.	Price Adjustment		
C	26.	Retention		
D	27.	Liquidated damages		
E	28.	Securities		
F	29.	Day Works		
G	30.	Liability and Insurance		
H	31.	Completion and Taking Over		
I	32.	Final Account		
J	33.	Termination		
K	34.	Payment upon termination		
L	35.	Release from performance		
M	36.	Corrupt gifts and Payments of commission		
N	37.	Settlement of Disputes		
TOTAL CARRIED TO SUMMARY				

Item	Description	US\$	
	<p><u>SECTION A</u></p> <p><u>CONDITIONS OF CONTRACT</u></p> <p><u>SUMMARY PAGE</u></p> <p>Total Carried From Page 1/1</p> <p>Total Carried From Page 1/2</p> <p>Total Carried From Page 1/3</p> <p>Total Carried From Page 1/4</p>		
	TOTAL FOR BILL NO. 1 CARRIED TO MAIN SUMMARY		

BILL NO.2

PRELIMINARIES

PRELIMINARIES

2021.05.04 PROPOSED KENYA RE - UGANDA OFFICES FIT-OUT AT REDSTONE HOUSE
BUGOLOBI- Blank Document.xlsx

Item	Description	US\$.	Cts
	<p style="text-align: center;"><u>BILL NO.2</u></p> <p style="text-align: center;"><u>PRELIMINARIES</u></p> <p>A <u>Sufficiency of Tender</u></p> <p>The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the Works and of the rates and prices stated in the bills of Quantities which rates and prices shall cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works</p> <p>B <u>Definition of Terms and Abbreviations</u></p> <p>The Terms and Abbreviations used in these Tender Documents Shall be interpreted as follows:-</p> <p>“ B.S.” shall mean The current British Standard of Specification published by the British Standard Institution, Park Street, London, W.1 England</p> <p>“ NO.” shall mean Number</p> <p>"L.M." shall mean Linear Meter</p> <p>"M" shall mean Linear Meter</p> <p>"SM" shall mean Square Meter</p> <p>"CM" shall mean Cubic Meter</p> <p>"Ditto" shall mean The whole of the preceding description except as qualified in the section in which it occurs. Where it occurs in brackets, it shall mean the whole of the preceding description which is contained within the appropriate.</p> <p>"MS" shall mean Measured separately</p> <p>"BSM" shall mean Both sides measured</p> <p>"P.C" shall mean Prime cost</p> <p>"75mm to 150mm" shall mean Exceeding 75mm but not exceeding 150mm in girth, and all items described in this manner shall be similarly construed.</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	US\$.	Cts
	<p style="text-align: center;"><u>BILL NO.2</u></p> <p style="text-align: center;"><u>PRELIMINARIES</u></p> <p>A <u>Access to site and temporary roads</u></p> <p>Means of access to the Site shall be agreed with the Architect prior to the commencement of the Works and the Contractor must allow for building any temporary access roads for the transport of materials, plant and workmen as may be required for the complete execution of the Works including the provision of temporary culverts, crossings, bridges or any other means of gaining access.</p> <p>Upon the completion of the Works, the Contractor shall remove such temporary roads, culverts, bridges, etc., and make good and reinstate all Works and services disturbed to the satisfaction of the Architect.</p> <p>B <u>Area to be occupied by the Contractor</u></p> <p>The area of the Site which may be occupied by the Contractor for use as storage and for the purpose of erecting workshops, etc., shall be defined on the Site by the Architect.</p> <p>C <u>Setting out</u></p> <p>The Contractor shall set out the Works in accordance with the dimension and levels shown on the Drawings and shall be responsible for the correctness of all dimensions and levels so set out by him and will be required to amend all errors arising from inaccurate setting out at his own cost and expense. In the event of any error or discrepancy in the dimensions or levels marked on the Drawings being discovered, such errors or discrepancies shall be reported by the Contractor to the Architect for his immediate attention.</p> <p>No Work shall be commenced by the Contractor until he has received written instruction from the Architect to adjust such discrepancies which may be proved. Upon receipt of such instructions, the Contractor shall thereupon be responsible for accurate setting out of the Works, giving effect to the adjustments necessary to comply with such instructions, and no claim for extra expense or relief from the provision of Clause 5 of the Conditions of Contract based on any discrepancy or error in the dimensions or levels shown on the Drawings may be made thereafter.</p> <p>Before any Work is commenced by the Sub-Contractors or Specialised Firms, dimensions must be checked on the Site and / or buildings and agreed with the Contractor, irrespective of the comparative dimensions shown on the Drawings. The Contractor shall be responsible for the accuracy of such dimensions.</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	US\$.	Cts
	<u>BILL NO.2</u> <u>PRELIMINARIES</u>		

PRELIMINARIES

3/2

<p>A</p>	<p><u>Existing services</u></p> <p>Prior to the commencement of any Work, the Contractor is to ascertain from the relevant Authorities the exact position, depth and levels of all existing electric cables, water pipes or other services in the area and he shall make whatever provisions may be required by the Authorities concerned for the support and protection of such services. Any damage or disturbance caused to any service shall be reported immediately to the Architect and the relevant Authority and shall be made good to their satisfaction at the Contractors expense.</p>		
<p>B</p>	<p><u>Transport to and from the site</u></p> <p>The Contractor shall include in his prices for the transport of materials workmen, etc., to and from the Site of the proposed Works, at such hours and such routes as are permitted by the Authorities</p>		
<p>C</p>	<p><u>Public and private roads, pavements</u></p> <p>The Contractor will be required to make good, at his own expense, any damage he may cause to the present road surfaces and pavements during the period of the Works. In particular all the existing lawns, gardens, storm water channels, hedges, fences etc., which may be destroyed or damaged during the progress of the Works are to be made good by the Contractor to the approval of the Architect.</p>		
<p>D</p>	<p><u>Security of the works</u></p> <p>The Contractor shall be entirely responsible for the security of all the Works, stores, materials, plant, personnel, etc., both of his own and Sub-Contractors', and shall provide all necessary watching, lighting and other precautions as necessary as to ensure the security and the protection of the public.</p>		
<p>E</p>	<p><u>Water for the works</u></p> <p>The Contractor shall allow for providing all temporary water supplies required for the works, including Sub-Contract Works, together with all necessary storage tanks and distribution systems for the same and must allow for bearing all expenses incurred and paying for all water consumed without charge to any Sub-Contractor. Expenses in connection with Nominated Sub-Contractors should be allowed for in the attendance items under the relevant P.C. Sums.</p> <p>No guarantee or warranty is given as to the availability or suitability of water at the site.</p>		
	<p><i>Carried to summary US\$.</i></p>		

Item	Description	US\$.	Cts
	<u>BILL NO.2</u> <u>PRELIMINARIES</u>		

PRELIMINARIES

3/3

Item	Description	US\$.	Cts
<u>BILL NO.2</u>			
<u>PRELIMINARIES</u>			
A	<p><u>Electric light and power</u></p> <p>The Contractor shall allow for providing all temporary lighting and power supplies required for the works, including Sub-Contract works, together with all necessary distribution systems for the same and must allow for bearing all expenses incurred and paying for all current consumed without charge to any Sub-Contractor. Expenses in connection with Nominated Sub-Contractors should be allowed for in the attendance items under the relevant P.C. Sums.</p> <p>No guarantee or warranty is given as to the availability or suitability of power at the site.</p>		
B	<p><u>Telephone</u></p> <p>The Contractor shall arrange for, provide and maintain a telephone on the Site from the commencement to the completion of the Contract and shall pay all charges in connection therewith.</p>		
C	<p><u>Temporary Buildings for use by the Contractor</u></p> <p>The Contractor shall at his own cost, supply and erect all temporary buildings, sheds, mess rooms and stores with floors at least 150mm above ground level. No office, stores or other temporary buildings shall be erected on Site without first obtaining the consent from the Architect as to the type of temporary building to be supplied and the position in which they are to be erected.</p>		
D	<p><u>Sheds for storage of Materials</u></p> <p>The Contractor shall provide and maintain on the Site, ample weatherproof sheds for storage of cement and other perishable materials and shall clear the same away on completion and make good any disturbed surfaces.</p>		
E	<p><u>Offices for the Consultants</u></p> <p>(i) The Contractor shall provide, erect and maintain where directed on Site approved weatherproof lockup office for the sole use of the Consultants with a floor area not less than 14 square metres. The office shall be constructed with concrete or wooded floor and the walls and ceiling internally are to be lined with fibreboard. Glazed windows shall be provided of not less than 1 metre square area and the door shall have a strong lock or fastening. The office shall be provided with artificial lighting and electric power. The office is to be furnished with a table of sufficient size to carry the drawings, complete with drawers, and also stools and chairs. The table should be adequate to sit at least 8 (Eight) people. The contractor shall allow for regular cleaning of the office.</p>		
<i>Carried to summary US\$.</i>			

Item	Description	US\$.	Cts
	<p><u>BILL NO.2</u></p> <p><u>PRELIMINARIES</u></p>		
	<p>(ii) The Contractor shall keep on the Site and maintain in good condition, one dumpy or quickset level and levelling staff and one 30 metres steel/linen tape for the use of the Consultants. The Contractor shall also provide stationery for use by the consultants.</p> <p>(iii) He shall provide, erect and maintain a lockup pedestal type water or bucket closet for the sole use of the Consultants including making temporary connection to drain where applicable to the satisfaction of the Government and Medical officers of Health and shall provide the services of a cleaner and pay all conservancy charges and keep both office and closet clean and in sanitary condition from the commencement to the completion of the Works and dismantle and make good disturbed surfaces to the satisfaction of the Architect on completion of the Works.</p> <p>(iv) The office and the closet shall be completed before the Contractor is permitted to commence the Works.</p>		
A	<p><u>Office for the Clerk of works</u></p> <p>The Contractor shall provide, erect and maintain where directed on site an approved weatherproof office for the sole use of the Clerk of Works. The office shall be not less than 10 square meters and shall be of construction similar to the office of the consultants. The office shall be furnished with 1 No. desk with lockable drawers, 1 No. A0 Size drawing chest with four drawers, 1 No. lockable metal filing cabinet. The office shall also have all power and lighting points as necessary. The contractor shall allow for regular cleaning of the office.</p> <p>The contractor shall also provide stationery for use by the Clerk of Works.</p>		
B	<p><u>Signboard</u></p> <p>The contractor shall provide and erect where directed and maintain during the whole period of building operations and remove at completion, an approved temporary signboards to the Architect's standard design and giving the title of the Works and showing the names of the Employer, Architect, Quantity Surveyor, Engineers and the Contractor with sufficient space to add the names of the Nominated Sub-Contractors and suppliers. The lettering concerning the Architect, Quantity Surveyor and the Engineer is not to be more than 75mm high.</p>		
C	<p><u>Sanitation of the works</u></p> <p>Sanitation of the Works shall be arranged and maintained by the Contractor to the satisfaction of the Government and Local Authorities, Labour Department and the Architect.</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	US\$.	Cts
	<u>BILL NO.2</u> <u>PRELIMINARIES</u>		
A	<p><u>Materials, tools, plant and scaffolding</u></p> <p>All materials and workmanship used in the execution of the Works shall be of the best quality and description unless otherwise described. Any materials for the Works condemned by the Architect shall immediately be removed from the Site at the Contractor's expense</p> <p>The Contractor shall be responsible for the provision of all materials, scaffolding, tools, plants, transport and workmen required for the Works except insofar as may be stated otherwise herein and he shall allow for the provision of the foregoing except for such items specifically and only required for the use of the Nominated Sub-Contractors as described herein.</p> <p>No timber used for scaffolding, formwork or similar purpose shall be used afterwards in the permanent Works.</p> <p>All such plant, tools and scaffolding shall comply with all regulations whether general or local in force throughout the period of the Contract and shall be altered or adapted during the Contract as may be necessary to comply with any amendments in / or additions to such regulations.</p> <p><u>Supervision and Working hours</u></p> <p>The said Works shall be executed under the direction and to the entire satisfaction of the Architect ,who shall at all times during normal working hours have access to the Works and to the yards and the workshops of the Contractor and Sub-Contractors or other places where work is being prepared for the Contract.</p> <p>The working hours shall be those generally worked by good employers in the Building and Civil Engineering Trade in Uganda. Contractr should allocate certain heavt work to be carried out at night or oftwr working hours, with the consent of the Achitect and the Landlord.</p> <p>No work shall be covered up nor shall any concreting be carried out in the absence of the Clerk of Works without the prior approval of the Architect in writing.</p> <p><u>Fair wages</u></p> <p>The Contractor shall pay rates of wages and observe hours and conditions of labour not less favourable than the minimum rates of remuneration and minimum conditions of employment applicable in the district in which the works is carried out. The relevant notice must be posted up and kept posted upon the Site where it can conveniently be read by the employees concerned.</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	US\$.	Cts
<u>BILL NO.2</u>			
<u>PRELIMINARIES</u>			
A	<p><u>Training levy</u></p> <p>The Contractor's attention is called to the requirement for payment by the Contractor of a training Levy and the Contractor should allow in the Preliminaries of this Contract for all costs arising or resulting there from.</p>		
B	<p><u>Labour</u></p> <p>No labour with the exception of the watchman, may be housed on the Site and the Contractor shall allow for all transport and other charges in moving labour to and from the Site at such hours and such routes as are permitted by the Authorities. The Contractor is to provide, erect and maintain satisfactory housing for the watchmen and shall remove the same on completion of the Works.</p>		
C	<p><u>Existing Property</u></p> <p>The Contractor shall take every precaution to avoid damage to all existing property including roads, cables, drains and other services and he will be held responsible for all damage thereto, arising from the execution of this Contract, and he shall make good all such damages when directed at his own expense.</p>		
D	<p><u>Protection of the works</u></p> <p>The Contractor shall cover up and protect all finished works liable to damage including provision of temporary roofs, gutters, drains, etc., until the completion of the Works.</p> <p>In the event of any damage occurring to the Works, materials, sewers, drains, gullies, paths or other Works on the Site temporarily in the possession of the Contractor, for the purpose of this Contract, either from the weather, want of proper protection, defects or insufficiency of the Works, the Contractor alone shall be responsible and shall without extra charges, make good all damages and pay all costs which may be levied.</p>		
E	<p><u>Standard Measurements</u></p> <p>All dimensions and measures, etc., shown on the Drawings and given in this Bills of Quantities shall be metric.</p>		
F	<p><u>Bills of Quantities</u></p> <p>The whole of the Works contained in these Bills of Quantities is measured on the basis of the Standard Method of Measurements of the Building Works for Eastern Africa, prepared by the Architectural Association of Kenya, Second Edition, Metric, printed in 2008.</p>		
<i>Carried to summary US\$.</i>			

Item	Description	US\$.	Cts
	<p style="text-align: center;"><u>BILL NO.2</u></p> <p style="text-align: center;"><u>PRELIMINARIES</u></p> <p>The Method of Measurements herein used must be accepted and will be strictly adhered to for the adjustments of variations or for remeasurements as necessary. The whole of the quantities in these Bills, unless expressly otherwise stated, have been arrived at by taking the net measurements of various items of completed Works from the Drawings.</p> <p>All the Works in this Contract that is liable to adjustment has been measured as “Provisional” in these Bills of Quantities, and no excavation or foundation work or other works so described shall be filled in or covered up until all measurement needed for the Adjustments of Variations under clause 11 of the Conditions of Contract have been made by the Quantity Surveyor.</p> <p>The rates set out by the Contractor against each item shall, unless otherwise expressly provided to the contrary, or unless there is a separate item for extra labour, cutting or waste, be held to include for waste on materials, carriage and cartage, carrying in and return of empties, hoisting, setting, fitting and fixing in position, making good and all other labours and everything else necessary for the completion of each item and for establishment charges and profit.</p> <p>Throughout the Bills of Quantities generally, no mention is made of heights for hoisting and all prices must include for hoisting and fixing at any level within the limit shown on the Drawings or included in the general description unless a specific level is stated.</p> <p>The Contractor shall be deemed to have made allowance in his rates generally to cover items of Preliminaries expenses in connection with P.C Sums or other items if these have not been priced against the respective items.</p> <p>These Bills of Quantities have been prepared in the elemental form and each element contains work in various trades. For the purpose of pricing, the Bills of Quantities may be taken apart and each trade collected together but when the Tender is submitted the Bills of Quantities must be re-assembled in the correct order.</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	US\$.	Cts
	<p style="text-align: center;"><u>BILL NO.2</u></p> <p style="text-align: center;"><u>PRELIMINARIES</u></p> <p>A <u>Copyright</u></p> <p>The copyright of these Bills of Quantities is vested in the Quantity Surveyor and they may not be reproduced in whole or in part without the Quantity Surveyor's written permission.</p> <p>B <u>Prime Cost (P.C.) Sums</u></p> <p>(i) The words "Prime Cost" (or the initials "P.C.") wherever appearing in these Bills of Quantities, shall mean net cost exclusive of any trade, cash or other discounts whatsoever but inclusive of the cost of packing, carriage and delivery. Such costs shall be the sums due to the Sub-Contractor or suppliers after adjustment where applicable in respect of measurements or rates.</p> <p>(ii) Any increases or decreases in these Prime Cost Sums resulting from the adjustments and properly paid by the Contractor, shall be added to or deducted from the Contract Sum in the final account. In substantiation, the Contractor is required to produce to the Quantity Surveyor, all quotations, invoices and receipted accounts as shall be necessary to show the details of the sums actually paid.</p> <p>(iii) Any sums added by the Contractor in these Bills of Quantities in respect of profit upon any Prime Cost Sums will be deducted in the final settlement of accounts and a sum will be added, the amount of which will bear the same the proportion to the sum added as the net amount properly expended bears to the original P.C.Sum.</p> <p>C <u>Samples</u></p> <p>The Contractor shall furnish at the earliest possible opportunity before work commences at his own cost, any samples of materials of workmanship that may be called for by the Architect for his approval or rejection and any further samples in the case of rejection until such samples are approved by the Architect and such samples when approved shall be the minimum standard for the work to which they apply.</p> <p>D <u>Proprietary Articles</u></p> <p>Where proprietary articles are specified herein, the Contractor may propose the use of materials of equal quality but from other manufacturers with the approval of the Architect, but the decision of the Architect will be final.</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	US\$.	Cts
<u>BILL NO.2</u>			
<u>PRELIMINARIES</u>			
A	<p><u>Protection</u></p> <p>Cover up and protect from damage, including damage from inclement weather, all finished work and unfixd materials including that of the Sub-Contractor, etc., to the satisfaction of the Architect until the completion of the Contract and make good any damage which occurs. Carefully preserve all trees or bushes on or near the site.</p>		
B	<p><u>Removal of plant, Rubbish, etc</u></p> <p>The Contractor shall, upon completion of the Works, remove and clear away all temporary buildings, plant, rubbish and unused material, and shall leave the whole of the Site of the Works in a clean and tidy state to the satisfaction of the Architect. He shall also remove all rubbish and dirt from the Site at weekly intervals or as directed by the Architect.</p> <p>Particular care shall be taken in leaving windows clean and removal of all paint and cement stains there from.</p>		
C	<p><u>Prevention of Nuisance</u></p> <p>The Works and such sections of the Site necessary therefore shall be under the entire care and control of the Contractor during the whole period of the Contract and he shall take all possible precautions to prevent any nuisance, inconvenience or injury to the holders or occupiers of the existing or surrounding properties and to the public generally, and shall at all times keep all the paths and roads affected by the works in a safe and clear state and shall use proper precautions to ensure the safety of all wheeled traffic and pedestrians.</p>		
D	<p><u>Visitors to the site</u></p> <p>The Contractor is required to control all visitors to the Site and to keep out unauthorised visitors and to provide a visitors book and ensure that all the unauthorised visitors sign therein.</p>		
E	<p><u>Firm price contract</u></p> <p>The fluctuation Clause 32, is deleted from the Contract. This is a firm price Contract and the Contractor must allow in his rates for any increase in the prices of labour and/or materials which may occur after submission of the Tender.</p>		
<i>Carried to summary US\$.</i>			

Item	Description	US\$.	Cts
	<u>BILL NO.2</u> <u>PRELIMINARIES</u>		
A	<p><u>Programme and progress</u></p> <p>The Contractor shall furnish to the Architect, within 30 days from the date for possession of the site, for approval and display in the site offices, a Programme and Progress Chart devised in such a way that the lined programme is shown and progress can be marked up as the work proceeds. The Contractor shall keep this chart up to date at all times.</p> <p>If required by the Architect, this chart shall be generated and up-dated by an approved computer program. Approval by the Architect of the programme shall not relieve the Contractor of any of his obligations under this Contract.</p> <p>The Contractor shall not without the Architect's consent make any material alteration to the approved programme.</p> <p>If the Architect decides that progress does not match the programme, he may order the Contractor to revise the programme. The Contractor shall thereafter revise the programme to show the modifications necessary to ensure completion of the works by the Date of Practical Completion.</p> <p>The Architect shall notify the Contractor if the Architect decides that the rate of progress of the works or any section, is too slow to meet the Date for Practical Completion and that this is not due to a circumstance for which the Contractor is entitled to an extension of time under the Contract.</p> <p>Following receipt of such a notice, the Contractor shall take such steps as may be necessary, and as the Architect may approve, to remedy or mitigate the likely delay, including revision of the programme. The Contractor shall not be entitled to any additional payment for taking such steps.</p> <p>B</p> <p><u>Site progress photographs</u></p> <p>The Contractor shall take and develop (in both digital and still form) site progress photographs every two weeks.</p> <p>Adequate copies shall be made for distribution to the client (2 No.) and the Consultants (1 No.)</p> <p>C</p> <p><u>DUL DILIGENCE</u></p> <p>Allow a sum of US\$ 10,000 for due diligence for 3No. evaluators from Kenya Re to visit any of the 3 No. Sites (as proposed in the technical documents above) which has been completed and handed over in the past six (6) years of works value USD 50,000.00 and above. The due diligence shall be to confirm the information provided in the mandatory and technical evaluation are a true representation of the bidding firm(s) technical and financial proposal</p> <p>The Contractor shall factor in the costs of flights and covid tests requirements and for the evaluators.</p> <p>The due diligence will include accommodation(Full Board) for Kenya RE staff in a 4 star hotel, adequate buffet Lunch and travel expenses for the Ugandan staff</p>		
	<i>Carried to summary US\$.</i>		

Item	Description	Amount (US\$.)	Cts
	<u>BILL NO.2</u>		
	<u>PRELIMINARIES</u>		
	<u>SUMMARY</u>		
A	Page No. 3/1		
B	Page No. 3/2		
C	Page No. 3/3		
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K	Page No. 3/11		
	Carried to Main Summary		

PRELIMINARIES

3/S

BILL NO.3

OFFICE FIT OUT

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
A	<p><u>BILL NO.3</u></p> <p><u>OFFICE FIT - OUT</u></p> <p><u>ELEMENT NO.1</u></p> <p><u>DEMOLITIONS AND REMOVALS</u></p> <p><u>PRICING NOTES</u></p> <p><u>Tenderers are strongly advised to read and understand the following notes before pricing this section. Any query on the notes should be referred to the Project Manager/Architect or the Quantity Surveyor</u></p> <p>Amounts for demolitions shall include the following in addition to what is described in the particular item:</p> <p>a) Making good i.e. re-instatement of any finishes and structures affected by the demolition work to the original state.</p> <p>b) Clearing debris with speed on a daily basis as they arise, cleaning of affected surfaces, and removal of the debris from site to Kampala City Council Authority approved dumping sites. Accumulation of debris within the site premises shall not be allowed.</p> <p>Demolition work shall be carefully executed with the particular aim of minimizing damage to adjacent finishes, structure, or components.</p> <p>The amounts quoted shall be deemed to be inclusive of all handling of the removed items and their removal from site.</p> <p>Amounts given should include for adequate temporary support and protection for the remaining elements of the buildings being demolished and to adjacent buildings and services.</p> <p>All materials, components and fittings arising from the demolitions work shall become the property of Client unless specifically stated otherwise.</p>				
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>MEASURED DEMOLITION WORKS</u> <u>The amounts inserted against items must include for loading and carting away rubbish and debris to dump to be found by the contractor and leaving the whole site clean and tidy to the satisfaction of the Project Manager/Architect and Local Authority and making good all disturbed surfaces to approval.</u>				
	<u>FINISHES</u>				
A	Allow for labour and material for chiselling onto existing floor screed/wall plaster for 32/20mm diameter pvc conduit provisions; ditto; ditto; ditto	LM	6		
B	Carefully remove existing ceiling panels as directed by the architect; ditto; ditto; ditto ; ditto .	SM	152		
C	Hack off existing floor tiles including backing screed to an average of 50mm deep; cart away arising debris from site; prepare surfaces to receive finishes; make good disturbed surfaces	SM	18		
D	Ditto to existing 100mm high tile skirting; ditto; ditto; ditto.	LM	41		
	<u>PARTITIONS AND OPENINGS</u>				
E	Carefully remove existing glazed aluminium framed door (fire escape), complete with framing, overall size 1420 x 2700mm high (overall) comprising: 1 No. equal openable shutter size 900 x 2,400mm high and unopenable shutter size 520 x 2,400mm high, handover salvaged door to landlord/client; remove arising debris from site; make good disturbed surfaces.	NO	1		
F	Carefully remove existing glazed aluminium framed door (main entrance), complete with framing, overall size 1400 x 2700mm high (overall) comprising: 1 No. equal openable shutter size 900 x 2,400mm high and unopenable shutter size 500 x 2,400mm high, ditto; ditto; ditto.	NO	1		
G	Carefully remove existing 100mm thick dry wall gypsum partition as directed by the architect; ditto; ditto; ditto ; ditto .	SM	13		
H	Ditto to existing 100mm high timber skirting; ditto; ditto; ditto.	LM	8		
	TOTAL CARRIED TO COLLECTION				
	<u>COLLECTION</u> Total carried forward from Page 3/1/1 Total carried forward from Page 3/1/2				
	TOTAL CARRIED TO SUMMARY OF BILL NO. 3				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.3</u>				
	<u>OFFICE FIT - OUT</u>				
	<u>ELEMENT NO.2</u>				
	<u>WALLING AND PARTITIONING</u>				
	<u>PRECAST CONCRETE CLASS 20 : fair faced on all exposed surfaces including bedding and jointing in cement and sand (1:3) mortar</u>				
A	100 x 200mm lintel	LM	1		
	<u>BLOCK WALLING</u>				
	<u>Solid Concrete block work jointed and pointed in cement sand (1:3) mortar with and including hoop iron wall ties every alternative course : in</u>				
B	200mm Thick walls	SM	9		
C	150mm Thick walls	SM	5		
D	100mm Thick walls	SM	28		
E	Extra over for toothing and bonding 200mm thick wall	LM	2		
F	Extra over for bonding with coffee tray mesh between the old and new walls	SM	2		
	<u>DRY WALL PARTITIONS</u>				
	<u>12.5mm gypsum plaster board on both sides; appropriately fixed onto plasterboard partition; comprising of 67 x 32 mm U section galvanized structural frames at 600 mm centres both ways/ 100 x 50mm timber structural framing ; with 1 layer with 50mm thick approved acoustic mineral foam/rock wool insulation (< 12kg/m3) to be fitted into cavity: as per Architect's detail drawings: in</u>				
G	100mm Thick dry wall partitions	SM	60		
	<u>12.5mm gypsum plaster board on both sides; appropriately fixed onto plasterboard partition; comprising of 67 x 32 mm U section galvanized structural frames at 600 mm centres both ways/ 100 x 50mm timber structural framing ; including boxed metal studs and channel framing fixed to floor/slab with self drilling and tapping screws with counter sunk heads; 76mm wide joists at 1000mm centres both ways: as per Architect's detailed drawing; in as per Architect's detail drawings: in</u>				
H	100mm Thick dry wall partitions	SM	23		
	<u>20mm THICK BLOCKBOARD fixed inside plasterboard partition reinforced with 50 x 50mm mild steel framings and joist for TV anchoring/additional support</u>				
I	Sandwiched infills in plasterboard drywall partition for TV anchorage	SM	6		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>WALL CLADDING</u>				
	<u>20mm Thick MDF board partitions with approved laminate veneer (one side) and with seamless vertical joints: as per Architect's detailed drawing; in; L(22)03</u>				
A	Securely fixed to plasterboard wall surfaces	SM	15		
	<u>APPROVED VALCHROMAT wall cladding with APPROVED COLOURS fixed on 20mm thick MDF board securely fixed onto existing wall and with seamless vertical joints sealed including fixing as per the designers requirements :</u>				
B	To existing wall surfaces	SM	15		
	<u>FRAMED GLASS PARTITIONS</u>				
	<u>PURPOSE MADE APPROVED 'APPROVED COLOUR' POWDER COATED ALUMINIUM SECTION; aluminium 100 x 50mm thick frame; 10mm thick clear butt jointed toughened and glass and glazing; with sand blasted film (to approved pattern/ detail) ; all ironmongery and accessories as per Architect's detailed drawing and ironmongery schedules</u>				
C	Aluminium glazed partition W01 ; 2,025 x 2,100mm high overall to the regional director's room ; to Architect's elevation detail L(22) 05 & C(32)03	NO	1		
	TOTAL CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Total carried forward from Page 3/2/1				
	Total carried forward from Page 3/2/2				
	TOTAL CARRIED TO SUMMARY OF BILL NO. 3				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.3</u> <u>OFFICE FIT - OUT</u> <u>ELEMENT NO.3</u> <u>DOORS</u> <u>TIMBER DOORS</u> <u>46mm THICK SANDWITCHED SOLID CORED FLUSH DOORS comprising of;2 No. 20mm thick block board faced both sides with approved LACQUER VENEER or to Client approved veneer; 3 no. 10mm stainless steel U- shaped horizontal trips; 20mm thick hardwood lipping to edges : to Architect's detailed drawings</u>				
A	Board Room Door ODO3 size 900 x 2,100mm high (overall) comprising: 1 No. equal openable shutter size 800 x 2,050mm high; with 200 x 1,500mm x 6mm thick clear float glazed vision panel and 15 x 15mm hardwood beadings; as per Architect's Drawing C(32) 06	NO	1		
B	Registry/Archive Room Door ODO5 size 900 x 2,100mm high (overall) comprising: 1 No. equal openable shutter size 900 x 2,100mm high; with 200 x 750mm x 6mm thick float glazed vision panel and 15 x 15mm hardwood beadings; 200 x 450mm high Aluminium transfer grille.15 x 15mm hardwood beadings; as per Architect's Drawing C(32) 05	NO	1		
C	Regional Director Room Door ODO7 size 900 x 2,100mm high (overall) comprising: 1 No. equal openable shutter size 800 x 2,100mm high;15 x 15mm hardwood beadings; as per Architect's Drawing C(32) 03 <u>45mm THICK SOLID CORED DOOR WITH (1(One) HOUR FIRE RATING DOOR; SANDWITCHED SOLID CORED FLUSH DOORS comprising of; 2No. 20mm thick block board faced both sides with approved LACQUER VENEER or to Client approved veneer; 3 no. 10mm stainless steel U- shaped horizontal trips; 20mm thick hardwood lipping to edges; The contractor shall be required to submit the manufacturers methodology, test certification's and warranty/guarantee; : to Architect's detailed drawings</u>	NO	1		
D	Server Room Door ODO4 size 1,100 x 2,100mm high (overall) comprising: 1 No. openable shutter size 1,000 x 1,900mm high; with 200 x 750mm x 6mm thick float glazed vision panel and 15 x 15mm hardwood beadings; as per Architect's Drawing C(32)04	NO	1		
E	Fire Escape Door ODO6 size 900 x 2,100mm high (overall) comprising: 1 No. openable shutter size 900 x 2,050mm high; with 200 x 750mm x 6mm thick Georgian mesh float glazed vision panel and 15 x 15mm hardwood beadings; as per Architect's Drawing C(31)01	NO	1		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>ALUMINIUM DOOR FRAMES</u> <u>Supply and fix purpose made powder coated anodized aluminium door frames with wool pile : with timber inserts including battens to top frame to approved architect's colour complete with structural weather proof silicon sealant</u>				
A	100 x 50 x 3mm frames to door openings	LM	10		
	<u>TIMBER DOOR FRAMES</u> <u>APPROVED WROT HARDWOOD FRAMES AND LININGS selected, treated and kept clean; to Architect's detailed drawing</u>				
B	100 x 50mm frames; two labours; fixed to ground (m.s)	LM	15		
C	50 x 20mm Architraves	LM	15		
D	25mm Quadrant piece	LM	15		
E	40 x 25mm Ground/packing piece	LM	15		
	<u>FRAMELESS GLASS DOORS</u> <u>SUPPLYING AND FIXING FRAMELESS PARTITION SHALL BE CARRIED OUT BY AN APPROVED SUB-CONTRACTOR</u> <u>SUPPLY AND FIX: PURPOSE MADE FRAMELESS DOOR BUTT JOINTED GLAZING : including 10mm Toughened tempered glass and glazing panels with approved sand blasted film: approved stainless steel/powder coated door handle; floor springs , locks AND ALL IRON MONGERY AND ACCESSORIES; as per Architect's Drawing</u>				
F	Main Entrance Door ; 10mm Thick Double leaf door overall size 1,400mm x 2,700mm high overall frameless pivoted toughened glass door with one openable shutter overall size 1,050 x 2,700mm high and unopenable shutter size 290 x 2,700mm high ;with 10mm high x 2mm thick stainless steel kick plate: to door detail C(32)01	NO	1		
G	Entrance Door ; 10mm Thick leaf door overall size 1,000mm x 2,700mm high overall frameless pivoted toughened glass door with one openable shutter overall size 1,000 x 2,700mm high ;with 10mm high x 2mm thick stainless steel kick plate: to door detail C(32)01	NO	1		
	<u>IRON MONGERY</u> <u>Supply and fix the following ironmongery : locks and furniture to be "Union" and approved by the Architect</u> <u>SET 1: Timber Doors</u>				
H	Union 8352-100SS 100 x 75mm ball bearing brushed stainless steel hinges	Prs	7.5		
I	Union Euro profile Dead Lock.	NO	5		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
A	Union KESO Omega Stainless steel Euro profile double Cylinder with keying system.	NO	5		
B	Union J-1000EE Euro profile Escutcheon- 54mm diameter, 10mm projection	Prs	5		
C	Union J-SYO11SS, 350X75X1.5mm push plate with “Push engraved”	NO	3		
D	Union pull handle with back plate “Pull engraved”.	NO	3		
E	Union J-DS101PS rubber buffered floor mounted door stop.	NO	5		
F	Union – 900mm wide x 150mm high x 2.0mm thick kick plate, 304 grade stainless steel, counter sunk drilled screw for fixing or embossed to surface.	NO	3		
G	Union – 1050mm wide x 300mm high x 2.0mm thick kick plate, 304 grade stainless steel, counter sunk drilled screw either for fixing or embossed to surface	NO	1		
H	Union 8826 (polished stainless steel) adjustable sliding arm door closure.	NO	3		
I	Panic bolt for single door with outside access device: J-U801 & J-U805	NO	1		
	<u>PREPARE AND APPLY THREE Coats polyurethane clear varnish in accordance with manufacturer's instructions : on wood : to</u>				
J	Surfaces not exceeding 100 - 200mm girth	LM	15		
K	Surfaces not exceeding 100mm girth	LM	30		
L	Prime back of wood before fixing	LM	15		
	TOTAL CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Total carried forward from Page 3/3/1				
	Total carried forward from Page 3/3/2				
	Total carried forward from Page 3/3/3				
	TOTAL CARRIED TO SUMMARY OF BIL NO.3				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.3</u>				
	<u>OFFICE FIT - OUT</u>				
	<u>ELEMENT NO.4</u>				
	<u>INTERNAL FINISHES</u>				
	<u>WALL FINISHES</u>				
	<u>INTERNAL LIME PLASTER, first coat of cement lime and sand (1:2:9) second coat of cement lime putty and sand 1:1:6 steel trowelled</u>				
A	20mm Thick two coat work to walls and concrete surfaces	SM	84		
	<u>PAINTING AND DECORATIONS</u>				
	<u>PREPARE AND APPLY ONE UNDERCOAT AND THREE COATS first grade vinyl silk emulsion paint : internally : on</u>				
B	Steel trowelled plastered walls and concrete surfaces	SM	84		
C	To plasterboard surfaces	SM	128		
	<u>PREPARE AND APPLY APPROVED "STUCCO" paint in accordance with CLASSIC MOULDINGS/approved manufacturer's instructions: internally : on</u>				
D	To board surfaces L[22]04	SM	8		
	<u>RUB DOWN; FILL CRACKS; REMOVE EFFLORESCENT;CLEAN and prepare surface and apply three coats first grade silk emulsion paint ; as per approved colour coded L[--]01 in accordance with manufacturer's instructions on: -</u>				
E	To existing wall and concrete surfaces.	SM	105		
F	To existing gypsum plasterboard surfaces	SM	174		
	<u>RECEPTION SIGNAGE</u>				
G	LED illuminated logo (moulded) and 5mm thick laser cut out for Reception signage fixed onto existing black glass	NO	1		
H	5mm thick Laser cut out for Reception 3D lettering fixed onto MDF wall partition	NO	1		
I	5mm thick Laser cut out branding identity fixed onto reception table	NO	1		
	<u>FLOOR FINISHES</u>				
	<u>CEMENT AND SAND (1:4) SCREEDS : finished to receive floor finishes</u>				
J	40mm Thick; to receive carpet floor tiles	SM	18		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>PORCELAIN FLOOR TILES</u> <u>RUB DOWN; FILL CRACKS; REPLACE BROKEN TILES;</u> <u>REMOVE EFFLORESCENT;CLEAN and polish existing floor</u> <u>tiles in accordance with manufacturer's instructions on: -</u>				
A	To existing 10mm thick tiled floor finish.	SM	111		
	<u>CARPET FLOOR TILES</u> <u>500 x 500 x 10mm THICK APPROVED CARPET FLOOR</u> <u>TILES AS MILIKEN BRAND COMPLETE or any other equal</u> <u>and approved; WITH SUBBASE : bedded and jointed in</u> <u>approved adhesive : to</u>				
B	To Boardroom floor	SM	18		
	<u>WROT MAHOGANY, selected and kept clean</u>				
C	100 x 20mm Skirting	LM	95		
	<u>PREPARE AND APPLY THREE Coats gloss oil paint in</u> <u>accordance with manufacturer's instructions : on wood : to</u>				
D	Surfaces 100-200mm girth	LM	95		
	<u>FLOOR DIVIDING STRIPS</u>				
E	3 x 25mm Polished stainless steel dividing strip cast in screed between different floor finishes	LM	1		
	<u>COMPOSITE RAISED FLOOR</u> <u>39mm FDEB 38 RAISED FLOOR BY KINGSPAN</u> <u>COMPRISING OF 600 x 600 x 39mm Thick Approved High</u> <u>Density Particle Boards (Moisture resistant quality v3130);</u> <u>including wear resistant/easy to clean ,lamine finish (both</u> <u>surfaces) and 600 x 600 x 4mm thick EVERROLL UNI II (Code</u> <u>TORONTO I) RUBBER FLOORING on an approved 300mm</u> <u>high raised ISO aluminium pedestal floor structure with open</u> <u>bottom access; fixed in accordance to manufacturers</u> <u>instructions an Architect's drawings on:-</u>				
F	Server Room floor	SM	6		
	<u>CEILING FINISHES</u>				
G	Allow for labour and material for supplying new ceiling tile grid system board panels where required, realigning existing ceiling holding channels, repairing and cleaning existing suspended ceiling surfaces.	SM	72		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>ARMSTRONG SUSPENDED CEILING</u> <u>ARMSTRONG MINABOARD ACCESSIBLE TILE SYSTEM</u> <u>SUSPENDED CEILINGS, 600 x 600 x 15mm thick fissured</u> <u>mineral fibre tiles ; WITH RECESSED GRID comprising of</u> <u>20mm x 7mm x 25mm gauge epoxy acrylic protected tee clips at</u> <u>600mm centres located by piped tabs into 38mm x 26mm x 23</u> <u>gauge epoxy acrylic protected snab tee runners at 600 mm</u> <u>centres in three meter lengths : jointed with 29mm x 20mm x</u> <u>170mm x 20 gauge hot dipped galvanised splice plates with</u> <u>20mm expansion edge trim of 20mm x 25 gauge two coat vinyl</u> <u>white painted channel edge trim : fixed with screws to</u> <u>background requiring plugging.to detail</u>				
A	Linings to form soffits: horizontal : suspended on 14 gauge pre-straightened galvanised annealed iron wire, to match existing	SM	34		
	<u>SUPPLY AND FIX GYPSUM PLASTER BOARD CEILING</u> <u>12mm Thick PLASTER BOARD CEILING on and including 65</u> <u>x 20 x 0.5mm thick omega profile channels at 600mm centres</u> <u>one way; 40 x 10 x 0.5mm "C" Channels at 600mm centres other</u> <u>way; 20 x 20 x 0.5mm thick angles fixed to walls or hung from</u> <u>trusses at 1000mm centres: to detailed drawing L(--)-01; on</u>				
B	Ceiling	SM	46		
C	Vertical bulkhead including framing to Architect's detailed drawings A[45]01	SM	15		
	<u>PAINTING AND DECORATIONS</u> <u>PREPARE SURFACE AND APPLY one coat primer and two</u> <u>finishing coats of ceiling matt paint in accordance with</u> <u>manufacturer's instructions on: -</u>				
D	Plasterboard ceiling	SM	61		
	TOTAL CARRIED TO COLLECTION				
	<u>COLLECTION</u> Total carried forward from Page 3/4/1 Total carried forward from Page 3/4/2 Total carried forward from Page 3/4/3				
	TOTAL CARRIED TO SUMMARY OF BILL NO.3				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<p><u>BILL NO.3</u></p> <p><u>OFFICE FIT - OUT</u></p> <p><u>ELEMENT NO.5</u></p> <p><u>JOINERY FITTINGS</u></p> <p><u>RATES FOR ALL JOINERY WORKS MUST INCLUDE ALL ACCESSORIES AND FITTINGS; PAINTING AND DECORATIONS; IRONMONGERY; AS PER ARCHITECT'S DETAILED DRAWINGS;THE CONTRACTOR MUST STUDY THE DRAWINGS AND ENSURE THAT HIS PRICE INCLUDES ALL ITEMS REQUIRED ON THE FITTINGS</u></p> <p><u>DISPLAY UNIT</u></p> <p><u>DISPLAY NICHE TOP COMPRISING 25mm APPROVED GRANITE TOP ON 18mm THICK BLOCKBOARD ON 50 x 50 x 4mm angle steel support frame and reinforcement members plugged to wall; 20mm THICK APPROVED GRANITE FASCIA; 900mm above finished floor level; 20mm thick approved veneer MDF shutters ; with 50 x 50mm appropriate mild steel spray painted support structure; in accordance with Architect's detailed drawings A(72)01</u></p>				
A	2,825mm long x 450mm x 2,450mm high display top; with 2No.horizontal 10mm tempered glass shelves supported on stainless steel cleats; including 10mm Thick tempered frameless casement doors; to architect's detail L[-]01	NO	1		
B	Ditto ; but 2,000mm long x 450mm x 2,450mm high display top; ditto: ditto	NO	1		
C	Ditto ; but 1,500mm long x 350mm x 2,450mm high display top; ditto: ditto	NO	1		
	<p><u>RECEPTION DESK</u></p> <p><u>20mm Thick finished 'approved 'granite ' reception desk top on 25mm block boards complete with 10mm stainless steel Strip Profiles protruding from board; plastic computer desk grommet cover, Electrical indicator/ signage; 12mm thick Corian/granite top pn 18mm MDF backing; including 650 x 700 x 750m high under counter shelving with 6mm approved veneer; 2 x 80mm high stainless steel skirting ; all accessories, and decorations to Architect's approval as per detailed drawing L[72]01 - 04</u></p>				
D	A composite reception desk; consisting of 2,250 x 300mm wide x 1,050mm high and 2,250 x 800mm wide x 750mm high ; overall to architect's approval of details L[72] 01 - 04	NO	1		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>IN BUILT-IN STORAGE UNITS</u>				
A	<p><u>LOW-LEVEL GRANITE TOPPED STORAGE UNIT; 20mm Thick approved granite top and fascia sides; on 20mm thick approved veneer MDF shutters ; with 50 x 50mm appropriate mild steel spray painted support structure; in accordance with Architect's detailed drawings A(72)04 and L(22)04 ref: in</u></p> <p>4,700 x 600 x 900mm high low level storage unit; to detail drawings L[22]04</p>	NO	1		
B	<p><u>TEA COUNTER TOP.</u></p> <p><u>TEA COUNTER TOP in 20mm thick approved granite top, fascia sides; with 50 x 50mm appropriate mild steel support structure; in accordance with Architect's detailed drawings A(72)02 and L(22)06 ref: in</u></p> <p>1,600 x 600 x 900mm high; to detail A(72)02 - 03</p>	NO	1		
C	<p><u>RECEPTION LOW LEVEL CABINET</u></p> <p>3,100 x 300mm wide x 791mm high ; 20mm thick approved veneered MDF ; overall to architect's approval of details A(72)06</p>	NO	1		
D	<p><u>STORAGE SHELVES</u></p> <p><u>20mm Thick approved cabinet with shelves; 20mm thick approved veneered MDF shutter including hardwood timber bearer supports to shelves; all ironmongery, painting and decorations ; all to Architect's detailed drawing A[72]03 & L[72]05 - 06</u></p> <p>High level storage cabinets overall size 1,600 x 500 x 900mm high; to details</p>	NO	2		
	TOTAL CARRIED TO COLLECTION				
	<p><u>COLLECTION</u></p> <p>Total carried forward from Page 3/5/1</p> <p>Total carried forward from Page 3/5/2</p>				
	TOTAL CARRIED TO SUMMARY OF BILL NO.3				

Element	Description	Page	Amount (US\$)
	<u>BILL NO.3</u>		
	<u>OFFICE FIT - OUT</u>		
	<u>SUMMARY</u>		
A	DEMOLITIONS AND REMOVALS	3/1/2	
B	WALLING AND PARTITIONING	3/2/2	
C	DOORS	3/3/3	
D	INTERNAL FINISHES	3/4/3	
E	JOINERY FITTINGS	3/5/2	
	TOTAL BILL NO.3 CARRIED TO MAIN SUMMARY		

BILL NO.4

ELECTRICAL INSTALLATIONS

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<p><u>BILL NO.4</u></p> <p><u>ELECTRICAL INSTALLATIONS</u></p> <p><u>ELEMENT NO.1</u></p> <p><u>PRICING NOTES</u></p> <p><u>ALL SPECIFIED MATERIALS - GENERAL NOTES</u></p> <p>i) All works shall comply with: Republic of Uganda Ministry of Works and Transport, Specifications for Works Part 3; and BS 7671, Requirements for Electrical installation (IET Wiring Regulations)</p> <p>ii) All works shall comply with Manufacturer's instructions, Approved submittal and shop drawings and Electrical specifications</p> <p>iii) Submittals will be provided for all materials to be used in the installation works or approval. These will have the following information Catalogue cut sheets, Manufacturers guarantee of at least 1 year, Operation and Maintenance Data, Shop drawings, Product data and any other information deemed necessary.</p> <p>iv) To be supplied, delivered to Site, installed, connected complete and commissioned in full working condition including all the necessary fixing/mounting/terminating accessories as per Specification and Drawings, tested and commissioned to the satisfaction of the Electrical Engineer</p> <p>v) All underground reticulation and distribution cables are to be supplied and installed c/w all necessary fixing / clipping / supporting / glanding and termination accessories as per general specification and type approved by the supervising Electrical Engineer</p> <p>vi) The rate for the underground cables shall cover excavation, sand-bedding, backfilling, trenching, enclosing in PVC ducts, manholes, where necessary, and all associated builders' works. Actual measurements shall be based on the site conditions.</p> <p>vii) All indoor cables are to recessed within the cable ducts, ceiling voids, wall fabric enclosed in suitably sized PVC conduits neatly installed and to further Instructions from the Electrical Engineer and/or Drawings.</p> <p>viii) All LV cables to be stranded cables.</p> <p>ix) The entire electrical installation shall be tested for compliance in accordance to the 17th Edition of the IET (BS7671) Wiring Regulations and witnessed and approved by the Engineer</p> <p>x) Warning Signage and proper labelling to be provided</p> <p>xi) As-Built Drawings, Manuals and Manufacturer Guarantees to be provided. Testing, and Commissioning of the each Systems to be done to the Satisfaction of the Engineer prior to acceptance of works</p>				
	TOTAL CARRIED TO SUMMARY OF BILL NO.4				0.00

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.4</u>				
	<u>ELECTRICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.2</u>				
	<u>POWER SUPPLY AND ACCESSORIES</u>				
	<u>UPS System</u>				
	<u>POWER SUPPLY AND ACCESSORIES</u>				
	<u>UPS System</u>				
A	Supply, Install, Test and Commission a 15kVA, 415V/50Hz On-line Double conversion Uninterruptible Power Supply Unit complete with static and manual bypass switch, parallel capacity, and battery module having the following Specifications to APC Smart UPS VT 15kVA or approved equivalent.				
	i) Nominal Power Output: 15kVA at PF=0.8				
	ii) Norminal AC Supply Input: 400V				
	iii) Input Frequency range: 45-55Hz				
	iv) Efficiency at full load: 95%				
	v) Back up time at full load: 10mins				
	vi) Overload capacity: 125% for 10 minutes				
	vii) Sealed Lead Acid battery and 10yrs min service time				
	viii) IP20 with English language display and controls				
	ix) Data recording	ITEM	1		
B	Bypass switch 63A 4pole as Schneider	NO	1		
C	Earth the UPS using 16mm sq PVC Insulated SC copper cable (green yellow earth cable) complete with all glanding and fixing accessories	LM	30		
D	4pole 63A Rotary isolator to Eaton Moeller (disconnect for the UPS)	NO	1		
	<u>LV DISTRIBUTION BOARDS AND CABLES</u>				
E	63A, 415V 6- Way Low Voltage TPN MCB-type lockable distribution board as Schneider or Siemens , complete with but not limited to the following items,63A TPN MCB, SP MCB, Busbar all as per Specifications and Drawings (DB-UPS)	NO	1		
	<u>CABLES</u>				
F	16mm sq.-4Core SC XLPE-SWA-PVC Copper cables for Power Supply connection from DB-BAT to DB- UPS	LM	60		
G	16Sq.mm SC XLPE/SWA/PVC copper cables. (earthing)	LM	60		
	TOTAL CARRIED TO SUMMARY OF BILL NO.4				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.4</u>				
	<u>ELECTRICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.3</u>				
	<u>LIGHTING FITTINGS</u>				
A	Fire Exit Fittings as Thorn Voyager Exit Sign	NO	3		
B	Recessed LED panel lights 600x600mm . A light weight recessed luminaire for exposed T grid systems with LED light source 4000K colour temperature, CRI>80 and a lifetime of 50,000 hours @ L70 Ta 25C including high efficiency up to 111lm/W, UGR<19. As Thorn Beta Office	NO	16		
C	Ditto above but emergency	NO	4		
D	Decorative Pendant light for the Boardroom & Reception. c/w will all mounting accessories as approved	NO	4		
E	15metres 240V LED strip light, waterproof IP54 white in colour as Thorn or Radiant lighting c/w power cable, drivers/controllers and all accessories or approved equivalent	NO	2		
F	3metres 240V LED strip light, waterproof IP54 white in colour as Thorn or Radiant lighting c/w power cable, drivers/controllers and all accessories or approved equivalent (Reception Table)	NO	1		
G	15W Single LED recessed downlights as Philips, Thorn or equal approved	NO	6		
H	Ditto above but emergency	NO	2		
I	12W twin Led Square Panel Downlights as Philips	NO	4		
J	Recessed LED spot lights c/w 6W LED lamp and all accessories as Radiant Lighting.	NO	25		
	<u>WIRING ACCESSORIES</u>				
K	Supply and install 10A/250V SP 1-Gang 1-Way white flush moulded plate switch c/w flush mounting box, and accessories to Legrand Synergy Modern manufacture Cat. 7310 00.	NO	5		
L	Ditto above but motion sensor switch as 10365 360 Spot type motion sensor	NO	2		
M	Ditto as above but 2-Gang 1-Way to Cat. No.7310 02	NO	2		
N	Ditto as above but 2-Gang 2-Way to Cat. No.7310 02	NO	1		
O	Supply and install 6A 1gang 1way ARCHITRAVE switch to Legrand	NO	1		
P	Supply and install 6A 2gang 1way ARCHITRAVE switch to Legrand	NO	1		
Q	13A SP 2-Gang moulded plate switched socket outlets c/w flush mounting box , as to CRABTREE List No. 4306/3, or approved equivalent. [in trunking/wall]	NO	20		
R	Ditto above but Non Standard sockets for UPS supply.	NO	6		
S	Ditto above but 1gang	NO	5		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
A	13A SP 2-Gang silver moulded plate switched socket outlets c/w USB port, flush mounting box , as to CRABTREE List No. 4306/3, or approved equivalent.	NO	25		
B	20A DP white moulded plate switch complete with flush mounting box, and fitted with a neon indicator lamp, as to CRABTREE List No. 4015/3, or equivalent.	NO	10		
C	Floor Outlet box with 3 compartment c/w: 2no. double switched socket outlet, 2 x RJ 45 data outlets, steel reinforced lid recessed to accommodate cable outlet flaps as crabtree	NO	1		
D	TV outlet top plate c/w flush mounting box and all accessories as Crabtree or approved equal	NO	3		
E	HDMI outlet plates	NO	3		
F	Twin RJ45 outlets for UTP Cat 6 for Voice and Data as Siemon or equal approved mounted on trunking or recessed in a wall complete with all accessories.	NO	20		
G	Single RJ45 outlets for UTP Cat 6 for Voice and Data as Siemon or equal approved mounted on trunking or recessed in a wall complete with all accessories.	NO	10		
H	3 pin 32 A Industrial socket c/w mounting accessories as Cabtree	NO	2		
I	All a fee to carefully remove and handover all the lights to the Landlord	ITEM	1		
TOTAL CARRIED TO COLLECTION					
<u>COLLECTION</u>					
Total carried forward from Page 4/3/1					
Total carried forward from Page 4/3/2					
TOTAL CARRIED TO SUMMARY OF BILL NO.4					

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.4</u>				
	<u>ELECTRICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.4</u>				
	<u>WIRING AND CABLE MANAGEMENT</u>				
	<u>Lighting points</u>				
A	All wiring of lighting points in the office area are to be connected complete and ready from 10A SP miniature circuit breakers, using 3x2.5mm sq. PVC-Insulated single core copper cables drawn in uPVC flush installed conduits/trunking/ flexible conduits, through switches, and as per drawings.	NO	67		
	<u>Power points</u>				
B	All wiring of all power points are to be connected complete and ready from 32A SP miniature circuit breakers, using 3x2.5mm sq. PVC-Insulated single core copper cables in ring circuit, drawn in trunking/conduits/ flexible conduit, as per drawings.	NO	56		
	<u>AC points and Fire panel</u>				
C	All wiring of AC (or fire panel) points are to be connected complete and ready from 20A SP miniature circuit breakers, using 3x2.5mm sq. PVC-Insulated single core copper cables, drawn in conduits/ flexible conduits, and through 20A DP control switches, as per drawings.	NO	10		
	<u>Data outlet points</u>				
D	Wiring to data points from the patch panel (network switch) to each data outlet (socket) through the trunking/conduits/ flexible conduits using CAT6E UTP 23AWG Solid PVC data cable siemens cable as shown in the drawing.	NO	60		
	<u>Industrial Sockets</u>				
E	All wiring of industrial socket points are to be connected complete and ready from 32A SP miniature circuit breakers, using 3x4mm sq. PVC Flexible copper cables, drawn in conduits/ flexible conduits, and through 32A DP control switches, as per drawings.	NO	3		
	<u>CABLE MANAGEMENT</u>				
	<u>Cable tray</u>				
F	Galvanised perforated cable tray system, V-Type, 300mmx50mm (WxH), complete with all attachments and accessories (Depth wise 4-way cross junction, Depth wise T junction, 90degree Bends, Reducers etc. [Note: Provisional route length stated, actual measurements to be done on site]	LM	30		
G	Galvanised perforated cable tray system, V-Type, 150mmx50mm (WxH), complete with all attachments and accessories (Depth wise 4-way cross junction, Depth wise T junction, 90degree Bends, Reducers etc. [Note: Provisional route length stated, actual measurements to be done on site]	LM	30		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
A	Galvanised Cable baskets system, 300mmx50mm (WxH), complete with all attachments and accessories (Depth wise 4-way cross junction, Depth wise T junction, 90degree Bends, Reducers etc. [Note: Provisional route length stated, actual measurements to be done on site] CCTV Conduiting	LM	30		
B	Conduiting to the CCTV points using 25mm diameter PVC conduit from the camera point to the Patch panel (NVR) in the server room as per the Drawings c/w with MK boxes. Access control point (Conduiting only)	NO	7		
C	Conduiting for access control to link the biometric reader, emergency button, exit button and magnetic lock using 25mm PVC conduit (flexible conduits) as per drawings Intrusion Alarm (Conduiting only)	NO	3		
D	Conduiting for intrusion alarm to linking the PIR motion sensor, door contacts, alarm sounder to the intrusion alarm panel using 25mm PVC conduit/ flexible conduits as per drawings 3-COMPARTMENT TRUNKING:	NO	8		
E	3-Compartment prestige skirting and DADO trunking (for data, telephone and power socket outlets), c/w all necessary accessories as to MARSHALL-TUFFLEX manufacture, or approved equivalent. (TO MATCH EXISTING TRUNKING) TV Points	LM	20		
F	Loop conduiting of TV points and connections to the ICT duct are to be done using 32mm PVC conduits/ flexible conduits a per drawings and all accessories	NO	3		
TOTAL CARRIED TO COLLECTION					
COLLECTION					
Total carried forward from Page 4/4/1					
Total carried forward from Page 4/4/2					
TOTAL CARRIED TO SUMMARY OF BILL NO.4					

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.4</u>				
	<u>ELECTRICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.5</u>				
	<u>FIRE DETECTION AND CCTV</u>				
	<u>FIRE DETECTION & ALARM SYSTEM</u>				
	<u>Supply and install the following elements compatible with the existing fire detection system</u>				
A	Smoke detector c/w base	NO	9		
B	Heat detector c/w base	NO	1		
C	Manual Break glass call point	NO	2		
D	Alarm sounder (CEILING MOUNTED)	NO	2		
E	Allow a fee to reprogram the existing fire panel to accommodate the additions above	SUM	1		
F	Loop wiring and conduiting of Detection Elements using 1.5mm sq 2-core Firetec OHLS 300/500V stranded copper cables to AEI CABLES LTD ref F2C1.5E or approved equivalent, in flush conduits	NO	14		
	<u>CCTV SURVEILLANCE SYSTEMS</u>				
G	Supply and install the following elements (c/w fixing and mounting accessories) of the AXIS or approved equivalent. The rate shall include "As-Built" Drawings, Manuals, Testing and Commissioning the System to the Satisfaction of the Engineer.				
i)	IP Dome HD 4MP camera with ICR,Smart IR, DNR, and all accessories ,IP 65	NO	6		
ii)	IP Bullet HD 4MP camera with ICR,Smart IR, DNR, and all accessories, IP 65	NO	1		
iii)	PC Workstation complete with desk top, 28 inch monitor and allow other necessary accessories	NO	1		
iv)	12port POE Switch	NO	1		
v)	Install 16 channels NVR	NO	1		
vi)	CAT 6 network cable as Siemens, Giganet or equal approved to be drawn in the conduiting specified above	LM	200		
vii)	1m Patch cods CAT6E UTP 24AWG solid PVC	NO	7		
viii)	24 port POE CAT 6 patch panel	NO	1		
ix)	Allow for all extra associated accessories , cable managers, wiring, associated software, power supplies, dc connectors, bnc connectors, sundry items for the successful installation, of the CCTV Surveillance Systems	ITEM	1		
	TOTAL CARRIED TO SUMMARY OF BILL NO.5				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.4</u>				
	<u>ELECTRICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.6</u>				
	<u>ACCESS CONTROL AND INTRUSION ALARM</u>				
	<u>ACCESS CONTROL</u>				
	<u>Supply and install the following elements (c/w fixing accessories) as "AXIS". The rate shall include "As-Built" Drawings, Manuals, Testing and Commissioning the System to the Satisfaction of the Engineer.</u>				
A	Axis Intelligent 1 Door Controller with real time alarm and access control on 1 Door, accepts multiple reader formats, with anti-pass back feature with Network Port .	NO	3		
B	Power supply with Battery backup	NO	3		
C	Biometric reader with Finger print Access Control terminal	NO	3		
D	Magnetic lock Single or Double with LZ Brackets	NO	3		
E	Push Exit button	NO	3		
F	Exit push button at reception	NO	1		
G	Log-in time system (time attendance reader)	NO	1		
H	12-port network switch	NO	1		
I	Network cable (CAT6)	LM	300		
J	8 Core cable	LM	250		
K	Resettable emergency break glass	NO	3		
L	Allow for all extra associated accessories, wiring, software for the successful installation, of the Access control Systems	ITEM	1		
	<u>INTRUDER ALARM SYSTEM</u>				
	<u>Supply and install the following elements (c/w fixing accessories). The rate shall include "As-Built" Drawings, Manuals, Testing and Commissioning the System to the Satisfaction of the Engineer.</u>				
M	Control panel including Main board and LCD keypad as Lightsys	ITEM	1		
N	12V 7AH battery for the panel	NO	1		
O	Motion sensors. Comet PIR Sensor	NO	6		
P	Siren (CEILING MOUNTED)	NO	2		
Q	Strobe (CEILING Mounted)	NO	2		
R	Magnetic contact for emergency exit	NO	1		
S	Glass break sensors as Vitron plus	NO	3		
T	Panic buttons	NO	3		
U	Cable 6 core	LM.	200		
V	Allow for all extra associated accessories, wiring, software for the successful installation, of the Intrusion alarm system and commissioning	ITEM	1		
	TOTAL CARRIED TO SUMMARY OF BILL NO.4				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.4</u>				
	<u>ELECTRICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.7</u>				
	<u>VOICE, DATA AND AUDIO VISUAL INSTALLATIONS</u>				
	<u>VOICE AND DATA SYSTEM</u>				
	<u>Supply and install the following elements (c/w fixing and mounting accessories). The rate shall include "As-Built" Drawings, Manuals, Testing and Commissioning the System to the Satisfaction of the Engineer.</u>				
	<u>DATA System</u>				
A	UTP CAT6 24 port patch panel Modular	NO	3		
B	1HU Patch Guide	NO	3		
C	UTP CAT6 1m Patch cords Unscreened Siemon	NO	52		
D	UTP CAT6 3m Patch cords Unscreened	NO	30		
E	CISCO WS-C3850-48PS-S switch POE	NO	1		
F	Ceiling mountable dual band POE powered wireless access points as CISCO Aironet Access Point (AIR-CAP1702i-H-K9)	NO	2		
	<u>VOICE System</u>				
G	Cisco IP PHONE 7937 Cisco IP Phone 7937 IP Conference Station For Boardroom	NO	1		
H	Cisco IP PHONE 7915 With One Expansion Module (Reception)	NO	1		
I	Supply and install CISCO IP Phones CP-7821	NO	10		
J	Supply and install CISCO IP Phones CP-7942	NO	1		
K	Telephone Connection Cords complete with Plug.	NO	14		
L	Cisco ISR 4531 Integrated Service Routers with NIM-2GE-CU-SFP	NO	1		
M	3600 Next Generation Threat Prevention & Sandblast (NGTX) Appliance Solution	NO	1		
N	Network Attached Storage BOX 3 TB	NO	1		
O	Allow a fee for fibre optic connections to an IPS to include fiber up links, modules and all other accessories.	SUM	1		
P	Supply and installation of 32U Rack cabinet with ultra quiet fan and 12 way PDU c/w all other accessories as Siemens or equal	NO	1		
	TOTAL CARRIED TO COLLECTION				

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>AUDIOVISUAL</u>				
	<u>The rate includes supply, installation testing and commissioning c/w all accessories including TV supports</u>				
A	75-inch Mondo pad Ultra-Premium, high performance collaboration Part number: INF75MU0	NO	1		
B	LED Smart LG 49 inch ultra HD 4KTV <u>Kramer</u>	NO	1		
C	USB Active Extender Cable. CA-UAM/UAF-25	NO	3		
D	5 m High Speed HDMI cable. C-HM/HM-25 (From the floor box to Tv screen) through trunking/conduit/cable tray	NO	1		
E	15 m High Speed HDMI cable. C-HM/HM-25 (From the NVR to Directors screen) through trunking/conduit/cable tray	NO	1		
	<u>IPAD PRO</u>				
F	Supply approved i-pad pro 11 air tablets with the following specifications 247.6 x 178.5 x 6.1 mm (9.75 x 7.03 x 0.24 in) ; 458 g (Wi-Fi) / 460 g (3G/LTE) (1.01 lb) with Glass front, aluminium back, aluminium frame Nano-SIM; eSIM ; Stylus support 1640 x 2360 pixels (~264 ppi density); Hexa-core (2x3.0 GHz Firestorm + 4x1.8 GHz Ice storm); 64GB 4GB RAM, 256GB 4GB RAM all other associated accessories to project manager's/client approval	NO	4		
	<u>DSTV</u>	NO			
G	Allow a fee for a DSTV Xtra View with the following accessories but not limited to the following; PVR HD decoder in the Regional director's office, HD Decoder at the Reception which will give a signal to the TVS in the open area as well, DSTV satellite dishes, LNB stand, free to air antenna, all wiring required (coaxial) and installation changes for at least 3months, and all accessories.	Sum	1		
	<u>ENVIRONMENT MONITORING SYSTEM</u>				
H	Advanced Temperature and environment monitoring system (Room Alert) c/w but not limited to the follows; humidity sensor, power sensor, temperature sensor, smoke sensor, flood sensor, 24/7 online and remote monitoring, all support software and all accessories to Ayttec or equal	NO	1		
	TOTAL CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Total carried forward from Page 4/7/1				
	Total carried forward from Page 4/7/2				
	TOTAL CARRIED TO SUMMARY OF BILL NO.4				

Element	Description	Page	Amount (US\$)
	<u>BILL NO.4</u>		
	<u>ELECTRICAL INSTALLATIONS</u>		
	<u>SUMMARY</u>		
A	ALL SPECIFIED MATERIALS - GENERAL NOTES	4/1/1	
B	POWER SUPPLY AND ACCESSORIES	4/2/1	
C	LIGHTING FITTINGS	4/3/2	
D	WIRING AND CABLE MANAGEMENT	4/4/2	
E	FIRE DETECTION AND CCTV	4/5/1	
F	ACCESS CONTROL AND INTRUSION ALARM	4/6/1	
G	VOICE, DATA AND AUDIO VISUAL INSTALLATIONS	4/7/2	
	TOTAL BILL NO.4 CARRIED TO MAIN SUMMARY		

BILL NO. 5

MECHANICAL INSTALLATIONS

Item	Description	Unit	Qty	Rate (US\$)	Amount (US\$)
	<u>BILL NO.5</u>				
	<u>MECHANICAL INSTALLATIONS</u>				
	<u>ELEMENT NO.1</u>				
	<u>AIR CONDITIONING INSTALLATION</u>				
A	Ceiling mounted cassette type split unit as LG 5.4kW(18,000 btu) or equal approved equivalent in Samsung or Daikin or Carrier complete with 30m copper piping (Gas and liquid), AVS, wiring with 2.5mm Sq cable, remote control and mounting brackets for indoor and out door	NO	3		
B	20mm pre-insulated ducted work with all required fixing and fitting accessories				
i)	250mm x 200 ducting	LM	15		
ii)	400mm x 200mm ducting	LM	40		
iii)	600mm x 200mm ducting	LM	30		
C	Using 150mm flexible duct extend return air to the required positions complete with the plenum box for supply air grilles	LM	85		
D	Ducted unit as LG/Carrier/Samsung, Daikin: 7.2kW(24,000btu) of cooling capacity, with inbuilt drain pump sound level 70dbA, power input: 0.074kW, single phase, with r410A Refrigerant, 30m copper piping complete with Air Filter, all hanging accessories, remote control, wiring from 20ADP switch to unit.	NO	2		
E	<u>Supply and return Linear grilles</u>				
i)	150 x 1,500mm	NO	4		
ii)	150 x 1,200mm	NO	4		
F	Wall mounted type split unit as LG/Carrier/Daikin 3.6 kW (12,000 btu) complete with 30m copper piping (Gas and liquid), AVS, wiring with 2.5mm Sq cable, remote control and mounting brackets for indoor and out door unit. Unit to be fitted with a drain pump for the condensate drainage (Server room)	NO	2		
G	Automatic switching unit for server room. One unit on duty another is standby (Server room).	NO	2		
H	40mm insulated pvc pipe for AC drainage	LM	100		
I	Dehumidifier as Danfoss equal or approved ,capacity of 20 litres per day	NO	1		
	<u>FIRE FIGHTING</u>				
J	5kg carbon dioxide gas fire extinguishers complete with pressure gauge, initial charge and mounting bracket	NO	2		
K	ABC type, 9kg fire extinguishers complete with pressure gauge, initial charge and mounting bracket	NO	2		
L	FM 200 fire fighting system comprising a 25kg FM 200 gas cylinder, control panel as maxlogic ml322 conventional series fire extinguishing panel complete with 4 smoke detectors, sounder, monitors, class B black steel piping, gas nozzle and all fixing and operating accessories	ITEM	1		
M	Standalone automatic extinguisher system with ABC gas, 10Kg, as ND6-Matic for the server room	NO	1		
	TOTAL CARRIED TO SUMMARY				

Element	Description	Page	Amount (US\$)
A	<u>BILL NO.5</u> <u>MECHANICAL INSTALLATIONS</u> <u>SUMMARY</u> AIR CONDITIONING INSTALLATION	5/1/1	
	TOTAL BILL NO.5 CARRIED TO MAIN SUMMARY		

MAIN SUMMARY

	MAIN SUMMARY		M/S
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**PROPOSED FITOUT OF KENYA REINSURANCE OFFICE, ON FIRST FLOOR LEVEL
REDSTONE HOUSE, PLOT 07, BANDALI RISE, KAMPALA, UGANDA.**

BILL NO	DESCRIPTION	PAGE NO.	AMOUNT (US\$)
1	GENERAL CONDITIONS	8	
2	PRELIMINARIES	21	
3	OFFICE FIT - OUT	35	
4	ELECTRICAL INSTALLATIONS	47	
5	MECHANICAL INSTALLATIONS	50	
	SUB-TOTAL		
	<u>ADD:</u> CONTINGENCIES	5%	
	SUB-TOTAL		
	<u>ADD:</u> VAT	18%	
	GRAND TOTAL	(US\$)	

.....

Signature of Employer

Witness: _____

Date:

.....

Signature of the Contractor

Witness: _____

Date:

SYMBION

PROPOSED FITOUT OF KENYA REINSURANCE OFFICES

Redstone House, PLOT 07 Bandali Rise -Kampala

TECHNICAL DRAWINGS

VOL 3

04-May-21



TECHINCAL DESIGN - Architectural Layouts

FEBUARY 2020



SYMBION

**PROPOSED FITOUT OF KENYA REINSURANCE
OFFICES**

PLOT 07, REDSTONE HOUSE, BANDALI RISE

JOB No.: SU /19 / 566

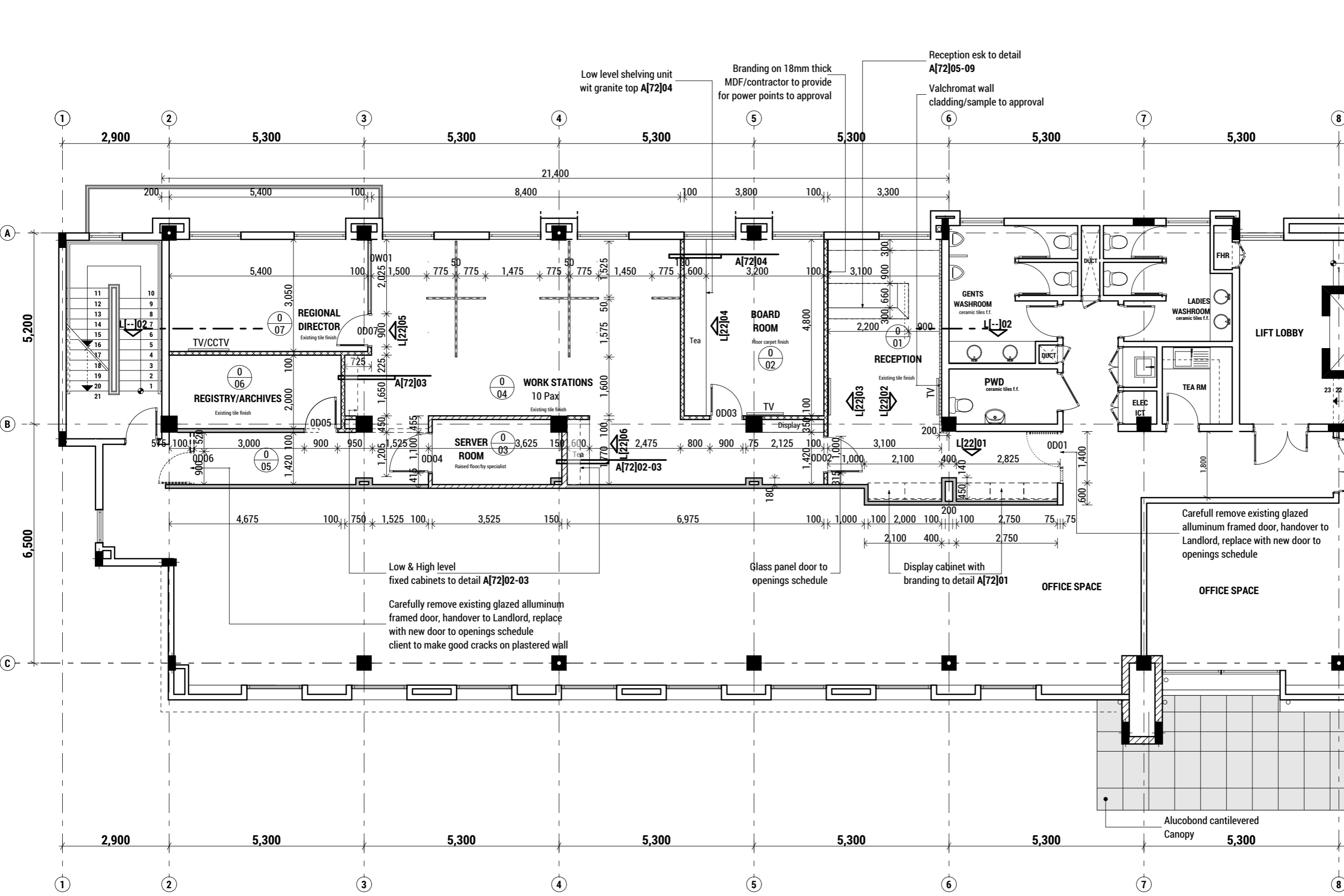
TECHNICAL DESIGN DRAWINGS

DRAWING LIST

RK/MAO: JUN/29/20

	Scale	Pater size	Status
<u>Survey Layouts</u>			
S[00]01 First floor plan	1:100	A3	
<u>General Layouts</u>			
L[-]01 Ground floor plan	1:100	A3	
L[-]02 Section	1:75	A3	
L[22]01-02 Internal Elevations	1:50	A3	
L[22]03-06 Internal Elevations	1:50	A3	
L[8-]01 Furniture layout	1:100	A3	
L[43]01 Floor Finishes layout	1:100	A3	
L[45]01 Reflected ceiling plan	1:100	A3	
<u>Ceiling Edge Details</u>			
L[45]01 Reflecedted Ceiling plan	1:20	A3	
<u>Internal Elevations</u>			
L[22]01-02 Internal Elevations	1:50	A3	
<u>Opening Details</u>			
C[32]01-02 Frameless Glass Door	1:25	A3	
C[32]03-04 Openings detail	1:25	A3	
C[31]01 & C[32]05-06 Openings detail			
<u>Internal Wall Finish Details</u>			
A[42]01 skirting details	1:1	A3	
<u>Fixed Furniture /Fitting Details</u>			
A[72]01 Display Unit Detail	1:10	A3	
A[72]02 Tea counter & High level Storage Detail	1:5,1:10	A3	
A[72]04 Boardroom Storage Cabinet Detail	1:10	A3	
A[72]05-10 Reception Counter Detail	1:25	A3	
<u>Mechanical & Electrical Drawings</u>			
E01 Power and Data Layout	NTS	A3	
E02 Server Room Layout Detail	NTS	A3	
E03 Lighting Layout: Ceiling Plan	NTS	A3	
E04 Fire Detection Layout: Ceiling Plan	NTS	A3	
E05 Security & CCTV: Ceiling Plan	NTS	A3	
M01 Air Conditioning & Fire Layout	NTS	A3	

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 - This drawing is to be read in conjunction with specifications and all other relevant drawings
 - Walls below 200mm thick to be reinforced with hoop iron at every alternate course
 - Depth of foundations to be decided on site
 - pv denotes permanent air vents over doors and windows as shown on drawings
 - A single layer of 3-ply bituminous felt to be provided between masonry and r.c. work
 - Drain pipes pa2mm thick stainless steeling under tarmac, driveway encased in 150mm thick concrete surround
 - All reinforced concrete work to Structural Engineer's drawings
 - All sanitary works to the entire satisfaction of MoH
 - All roads, storm water drainage and foul sewerage to Civil Engineer's drawings



RevID	ChID	Change Name	Date
A		Adjusting general arrangement layouts according new survey information	29/04/2021

Client
KENYA REINSURANCE CORPORATION LTD
 P.O.BOX 30271 00 100 NAIROBI, KENYA

Job Title
PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI PLOT 07, BANDALI RISE

SYMBION
 STUDIO HOUSE, PLOT 5 BANDALI RISE.
 P.O BOX 7671 KAMPALA, UGANDA
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Project status & Sheet Name
PRODUCTION DRAWINGS
 GENERAL ARRANGEMENT WALL LAYOUT PLAN

Drawn by MAO	Checked by RK
Date 04-May-21	Scale 1:100 @ A3
Revision A	Sheet No. L[-]01

Job Number
SU.18.566

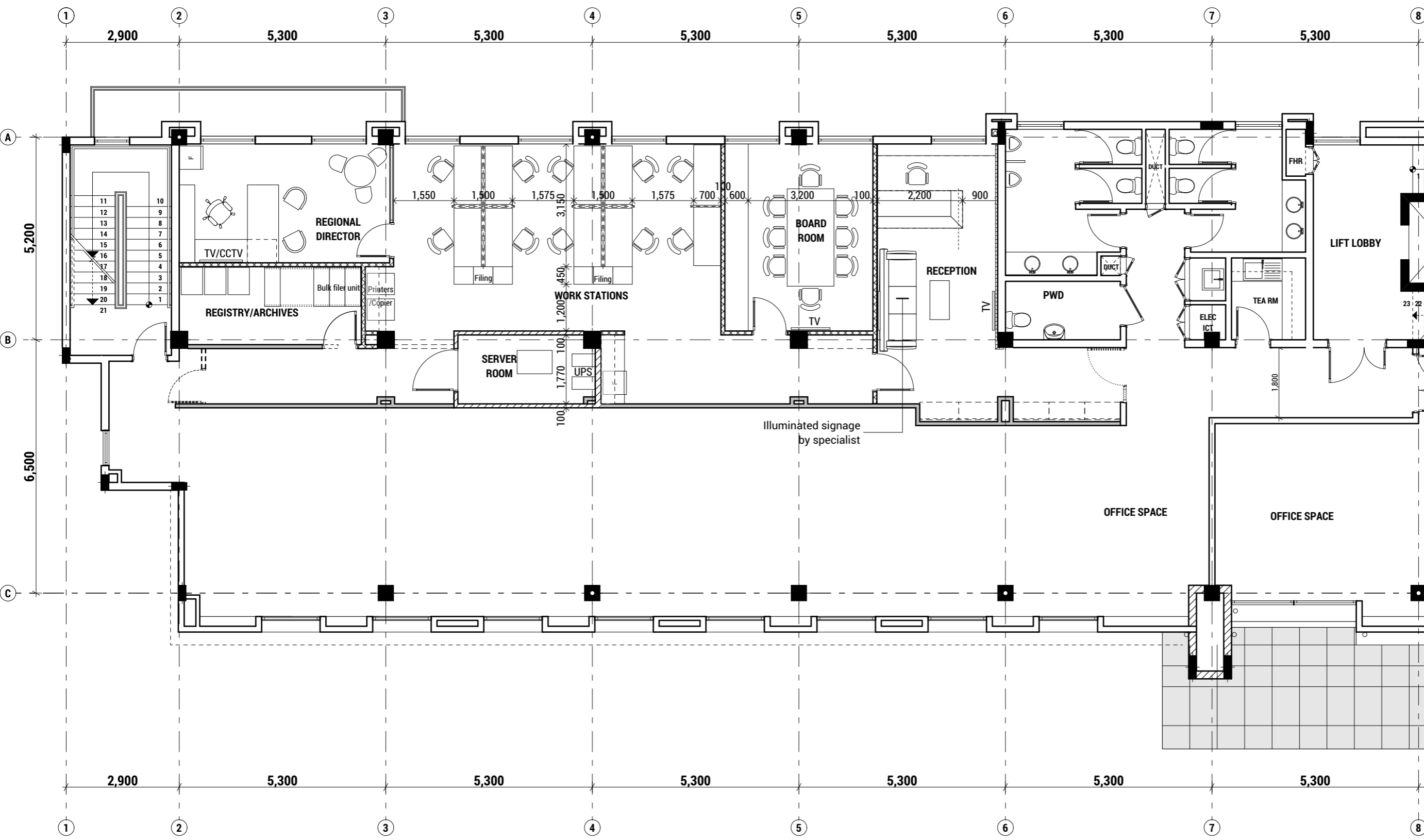
L[-]01 WALL LAYOUT PLAN

1:100

- New 100mm thick solid masonry wall with hoop iron at intervals
- New 150mm thick solid masonry wall
- New plasterboard wall with insulation to Architects approval to be built up to slab soffit
- Existing wall
- Existing gypsum wall
- Wall to be demolished

NOTE: New walls to be built up to slab soffit.

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 12. All reinforced concrete work to Structural Engineer's drawings
 13. All sanitary works to the entire satisfaction of MoH
 14. All roads, storm water drainage and foul sewerage to Civil Engineer's drawings



RevId	ChId	Change Name	Date
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Project status & Sheet Name
PRODUCTION DRAWINGS

FURNITURE LAYOUT PLAN

Drawn by MAO	Checked by RK
Date 04-May-21	Scale 1:100 @ A3
Revision A	Sheet No. L[8]-01

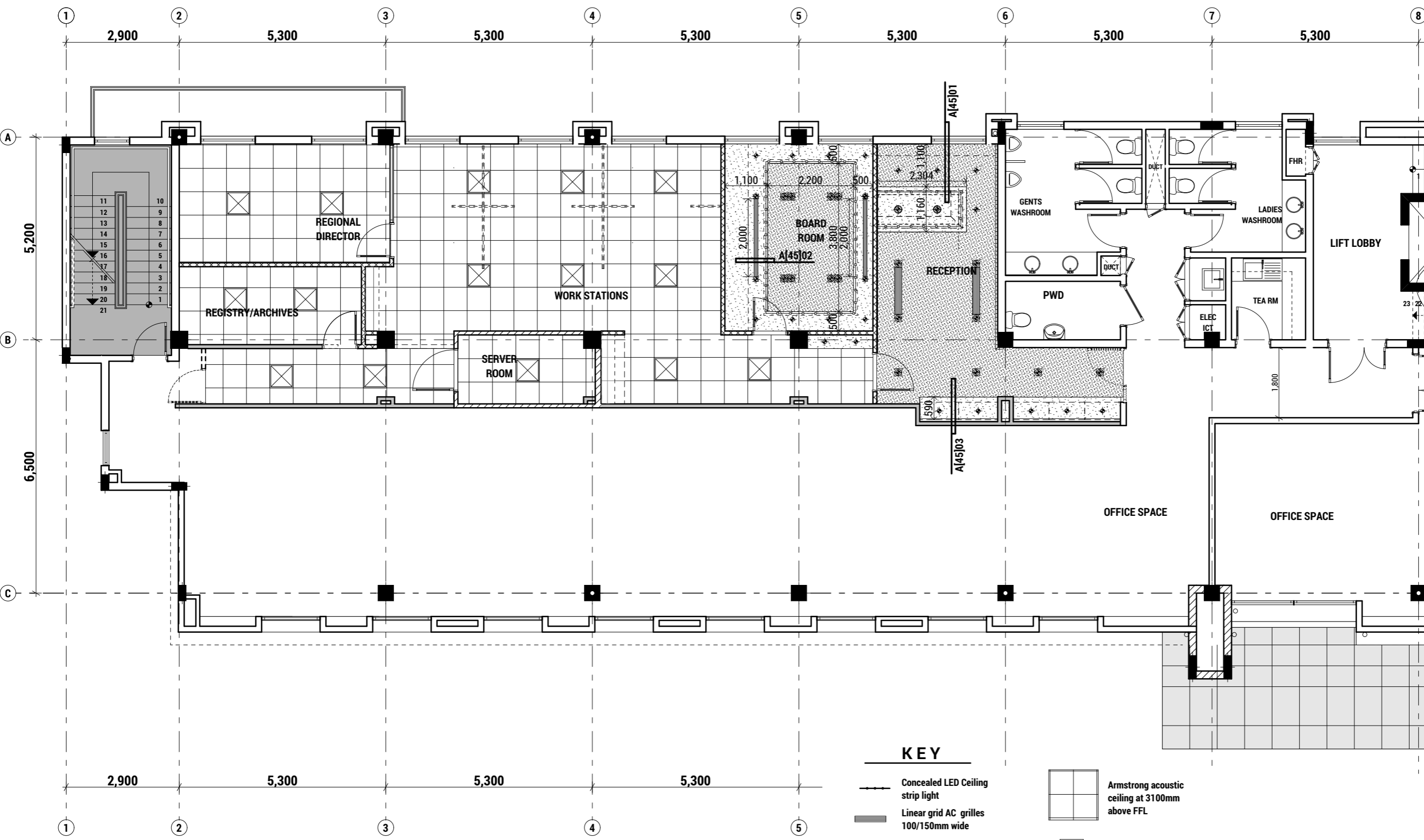
Job Number
SU.18.566

L[8]-01 FURNITURE LAYOUT PLAN

1:100

- New 100mm thick solid masonry wall with hoop iron at intervals
 - New 150mm thick solid masonry wall
 - New plasterboard wall with insulation to Architects approval to be built up to slab soffit
 - Existing wall
 - Existing gypsum wall
 - Wall to be demolished
- NOTE: New walls to be built up to slab soffit.**

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 10. A single layer of 3-ply bituminous felt to be provided between masonry and r.c. work
 11. Drain pipes pa2mm thick stainless steeling under tarmac, driveway encased in 150mm thick concrete surround
 12. All reinforced concrete work to Structural Engineer's drawings
 13. All sanitary works to the entire satisfaction of MoH
 14. All roads, storm water drainage and foul sewerage to Civil Engineer's drawings



L[45]01 REFLECTED CEILING PLAN

1:100

- KEY**
- Concealed LED Ceiling strip light
 - Linear grid AC grilles 100/150mm wide
 - Suspended Plasterboard ceiling at 2700mm above FFL
 - Suspended Plasterboard ceiling at 2900mm above FFL
 - Painted slab soffit
 - Armstrong acoustic ceiling at 3100mm above FFL
 - LED light panel to EE.'s specifications.
 - Down LED light to EE.'s specifications.
 - Spot light to EE.'s specifications.
 - Pendant light to EE.'s specifications.
 - LED rope light to EE.'s specifications.

RevID	ChID	Change Name	Date
A		Adjusting general arrangement layouts according new survey information	29/04/2021

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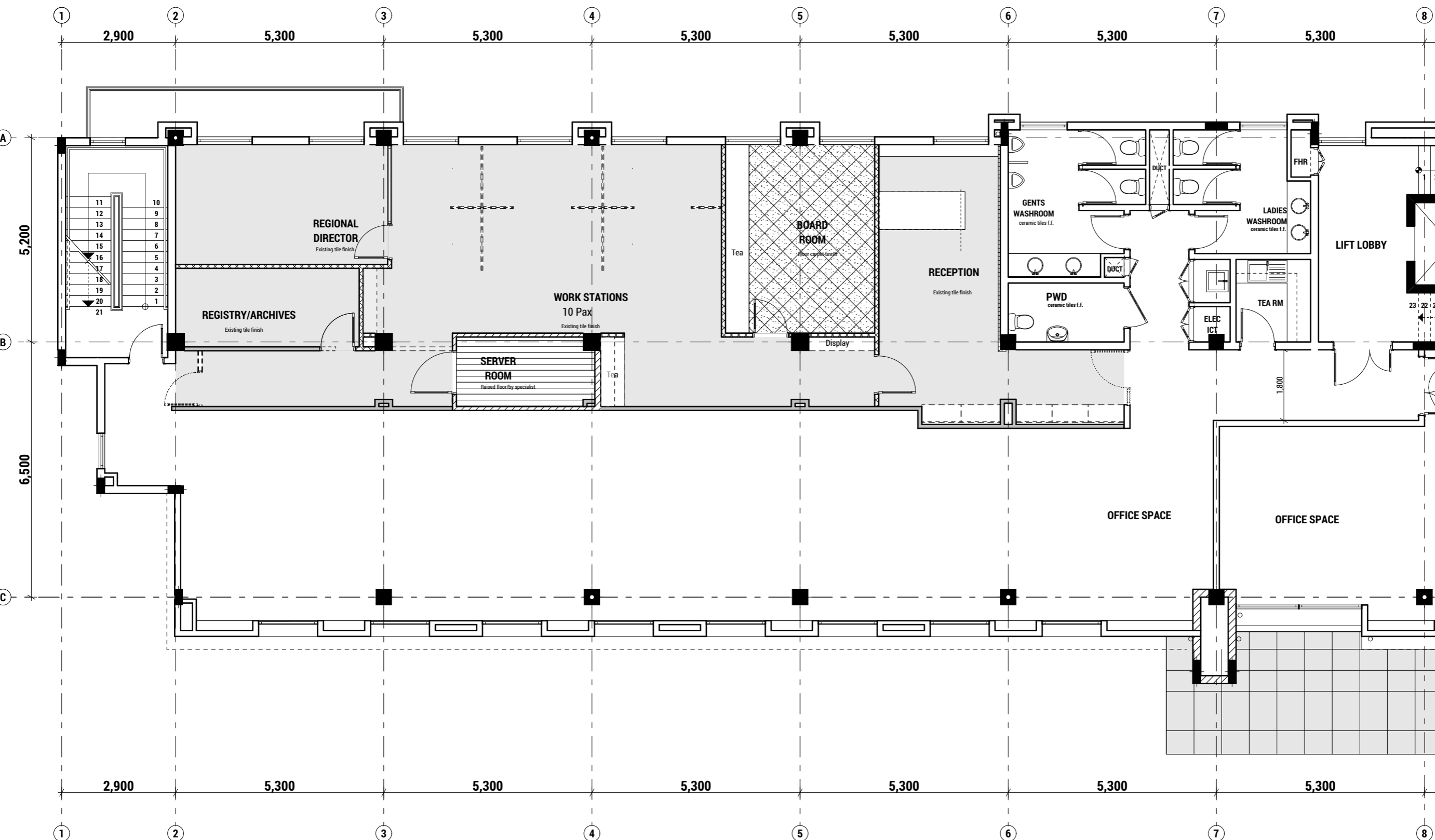
Project status & Sheet Name
PRODUCTION DRAWINGS

REFLECTED CEILING LAYOUT

Drawn by MAO	Checked by RK
Date 04-May-21	Scale 1:100 @ A3
Revision A	Sheet No. L[45]01

Job Number
SU.18.566

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Client
KENYA REINSURANCE CORPORATION LTD
 P.O.BOX 30271 00 100 NAIROBI, KENYA

Job Title
PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI PLOT 07, BANDALI RISE

SYMBION
 STUDIO HOUSE, PLOT 5 BANDALI RISE.
 P.O BOX 7671 KAMPALA, UGANDA
 TEL: +256(41)251142/349065,256(31)260252
 E-mail: symbionuganda@symbion-int.com
 WEBSITE: www.symbion-int.com

Project status & Sheet Name
PRODUCTION DRAWINGS

FLOOR FINISHES LAYOUT

Drawn by MAO	Checked by RK
Date 04-May-21	Scale 1:100 @ A3
Revision A	Sheet No. L[43]01

Job Number
SU.18.566

L[43]01 FLOOR FINISHES PLAN
 1:100

- Floor carpet finish/sample to be approved
- Existing tile floor finish to be maintained
- New 100mm thick solid masonry wall with hoop iron at intervals
- New plasterboard wall with insulation to Architects approval to be built up to slab soffit
- New 150mm thick solid masonry wall
- Existing wall
- Existing gypsum wall
- Wall to be demolished
- Raised floor to EE's & Architects approval

TECHNICAL DESIGN - Mechanical & Electrical Layouts

FEBRUARY 2020



SYMBION

SYMBOL	DESCRIPTION
	13A two Gang switched Socket outlet
	High level 13A two Gang switched Socket outlet (1200mm AFFL)
	RJ45 Data outlet
	Distribution board clean power
	TV point
	Floor box with socket & Data outlets
	UPS 13A two Gang switched Socket outlet
	Telephone point
	Trunking
	Finger print eader
	Exit button + Emergency release button
	Door contact
	HDMI plate
	Magnetic contact
	Panic button

NOTE:
01- TRUNKING ON THE WALL FOR POWER AND DATA SUPPLY

02- CONCEALED DROP OFF

03- 3x32mm CONDUITS CONCEALED

04- CABLE MANAGEMENT UNDER THE TABLE

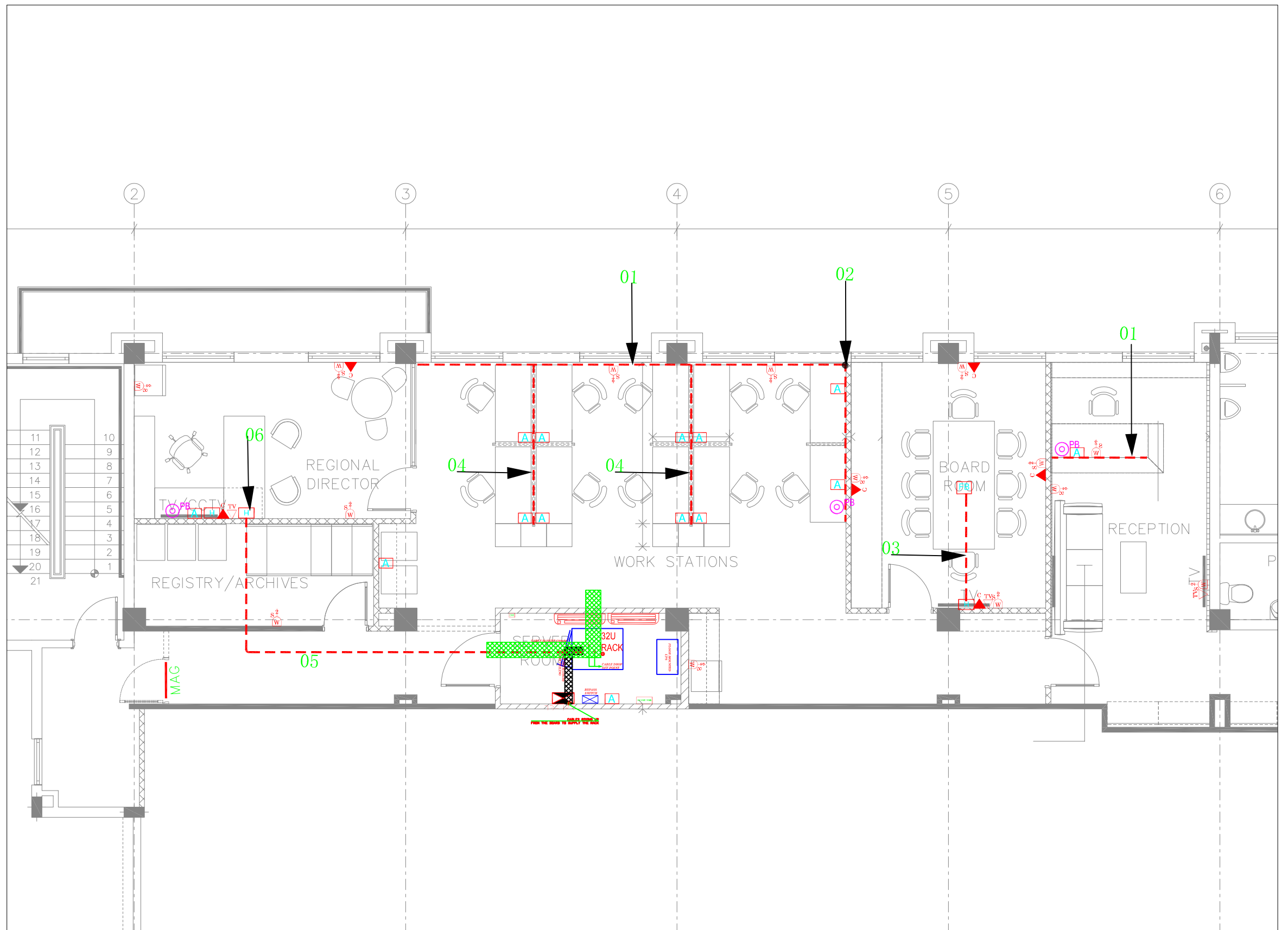
05- HDMI CABLE LINKING TV TO NVR

06- HIGH LEVEL HDMI PLATE PROVISION

NB:
THE EMERGENCY RELEASE BUTTON TO BE AT 2100mm
IN LINE WITH THE EXIT PUSH BUTTON

ACCESS CONTROL, INTRUSION PANEL AND WIRELESS ACCESS POINTS
POWERED BY SINGLE SOCKETS
ALL FLOOR BOXES AND TV SOCKETS SHOULD ON UPS

THIS LAYOUT TO BE READ IN CONJUNCTION WITH
ARCHITECTURAL DRAWING



IMK ENGINEERING CO LTD



CONSULTING ENGINEERS
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MINISTERS VILLAGE, NTINDA
P.O.Box 16587 Kampala
Email: imkeng.ltd@gmail.com

Project: **PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT
RED STONE HOUSE, BUGOLOBI PLOT 7, BANDALI RISE**

Client: **KENYA REINSURANCE CORPORATION LTD
P.O.BOX 30271 00 100 NAIROBI, KENYA**

Architect: **SYMBION**
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Drawing Title: **FLOOR PLAN: POWER & DATA LAYOUT**

Drawing No: **E01**

Job No: **IMK/20/04**

Date: **JANUARY 2020** Rev Date: **03rd.05.2021**










Designed By: **IV**

Drawn By: **IV**

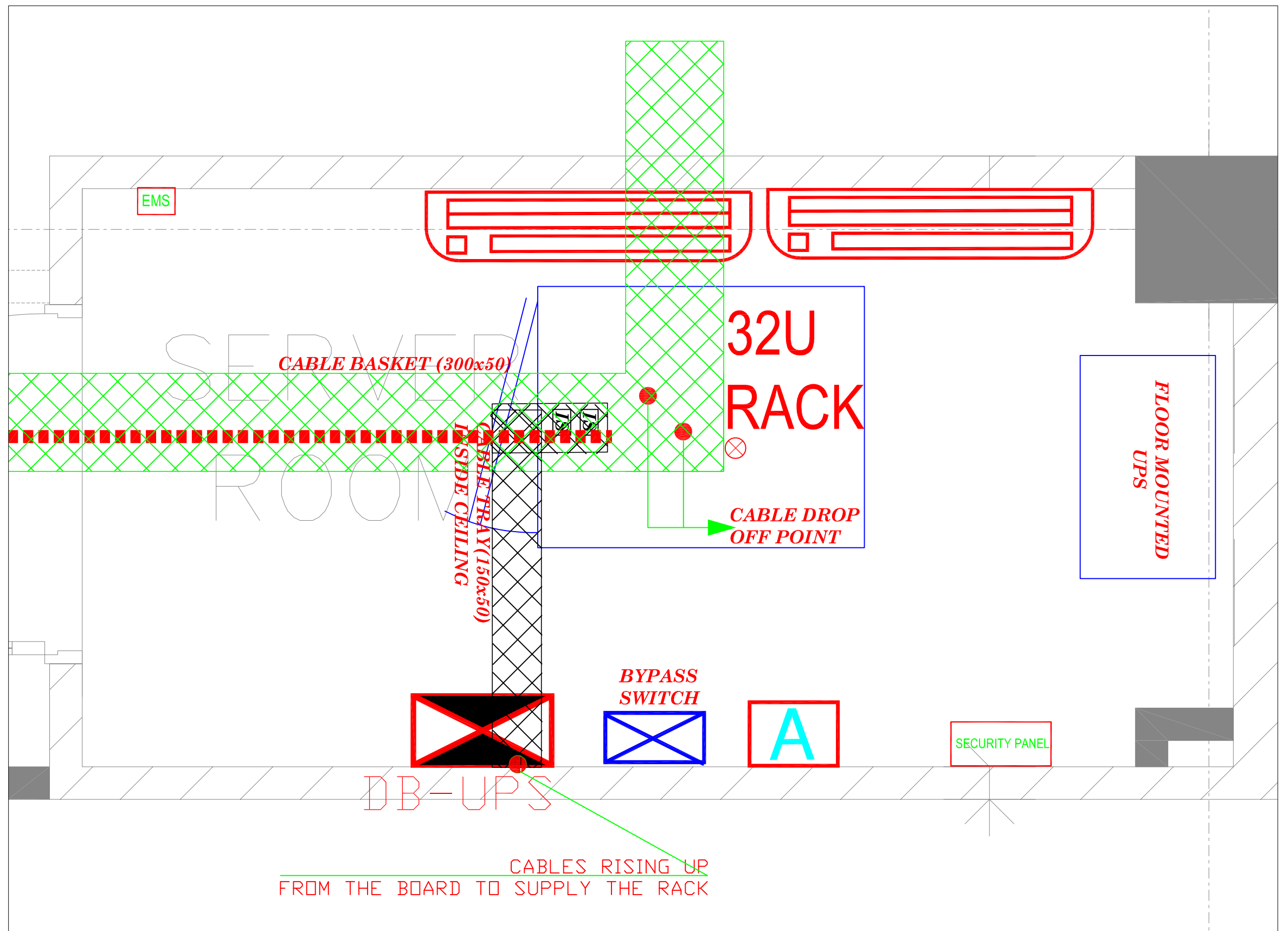
Checked by: **MS**

Approved by: **VBAK**

LEGEND

	ENVIRONMENTAL MONITORING SYSTEM
	SECURITY CONTROL PANEL
	DISTRIBUTION BOARD CONCEALED IN A WALL
	WALL MOUNTED AC IN DOOR UNIT (998mm X 210)
	GALVANIZED STEEL CABLE TRAY (150x50)mm
	GALVANIZED STEEL CABLE BASKET (300x50)mm
	FIRE SUPPRESSION NOZZLE
	3PIN INDUSTRIAL SOCKET
	32U RACK

NOTE:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL MEP LAYOUTS



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Project: PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI PLOT 7, BANDALI RISE

Client: KENYA REINSURANCE CORPORATION LTD
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Drawing Title: SERVER ROOM LAYOUT DETAIL

Drawing No: E02

Job No: IMK/20/04

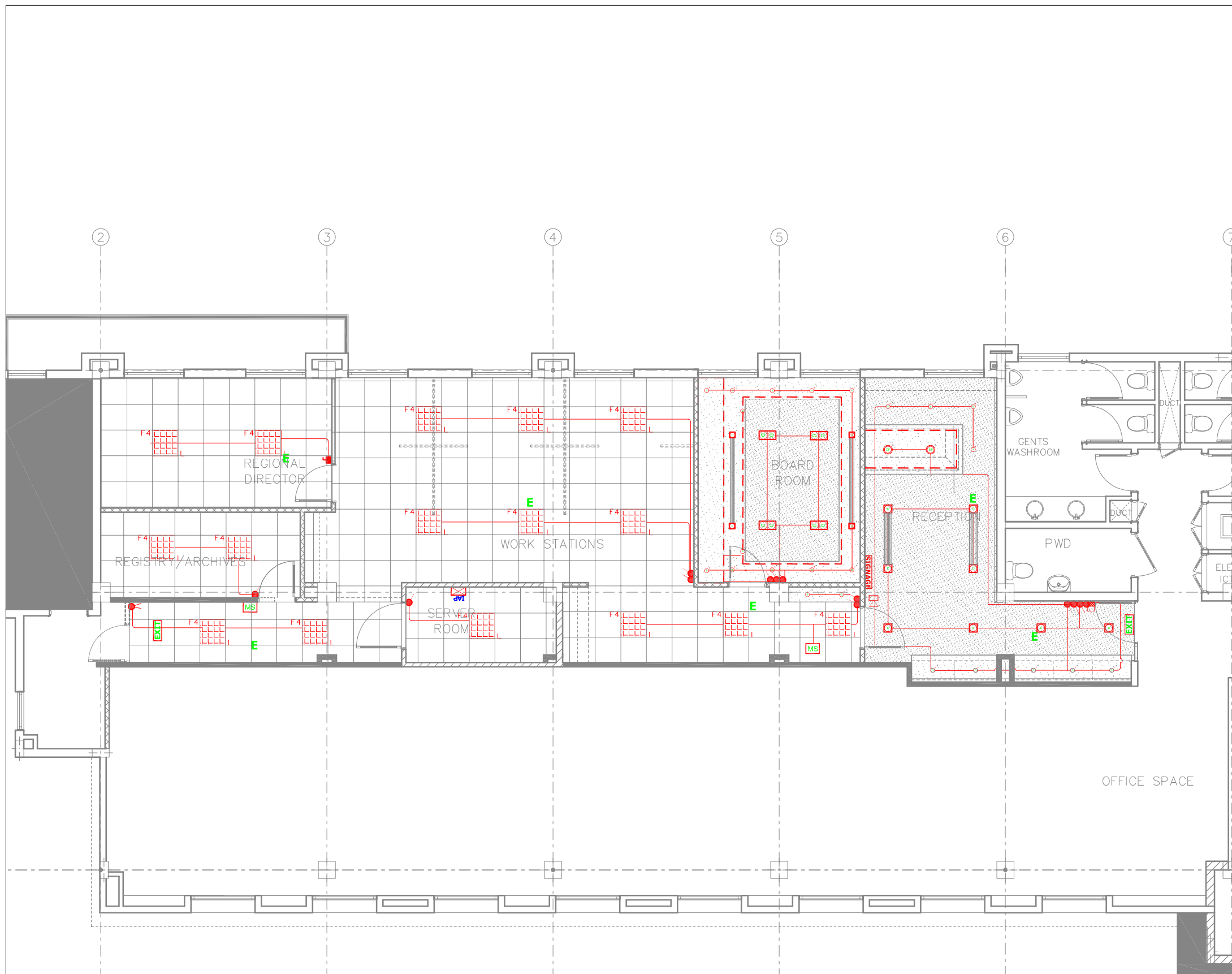
Date: JANUARY 2020 Rev Date: 03rd.05.2021

Designed By: IV

Drawn By: IV

Checked by: MS

Approved by: VBAK



LEGEND

	LED Roped Pedant light
	LED Quatro down light
	LED DOUBLE Quatro down light
	1 Gang 2way switch.
	1 Gang 1way switch.
	PIR Light motion sensor
	2 Gang 2way switch.
	LED Strip Light
	Signage Light
	Architrave Switch 1Gang 1way
	Architrave Switch 2Gang 1way
	LED Spot light 7W
	New 600x600 Recessed LED panel light (Type F4)
	Emergency light

NOTES:
 01- LAYOUT TO BE READ IN CONJUNCTION WITH AC LAYOUT.
 02- FINAL POSITIONS AS PER THE ARCHITECT'S REFLECTED CEILING PLAN TO APPROVAL.

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Project: **PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI PLOT 7, BANDALI RISE**

Client: **KENYA REINSURANCE CORPORATION LTD**
 P.O.BOX 30271 00 100 NAIROBI, KENYA

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 WEBSITE: www.symbion-kt.com

Drawing Title: **LIGHTING LAYOUT: CEILING PLAN**

Drawing No: **E03**

Job No: **IMK/20/04**

Date: **JANUARY 2020** | Rev Date: **03rd.05.2021**

Designed By: **IV**

Drawn By: **IV**

Checked by: **MS**

Approved by: **VBAK**



LEGEND

	Heat detector
	Smoke detector
	Break glass
	Fire alarm sounder suspended on ceiling
	Fire alarm panel

NOTES:
 01- LAYOUT TO BE READ IN CONJUNCTION WITH AC LAYOUT.
 02- FINAL POSITIONS AS PER THE ARCHITECT'S REFLECTED CEILING PLAN TO APPROVAL.

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Project: **PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI PLOT 7, BANDALI RISE**

Client: **KENYA REINSURANCE CORPORATION LTD**
 P.O.BOX 30271 00 100 NAIROBI, KENYA

Architect: **SYMBION**
57060 HOUSIE, PLOT 7, BANDALI RISE, 80001.09.
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 E-mail: symbiongroup@symbion-01.com
 WEBSITE: www.symbion-01.com

Drawing Title: **FIRE DETECTION LAYOUT: CEILING PLAN**

Drawing No: **E04**

Job No: **IMK/20/04**

Date: **JANUARY 2020**

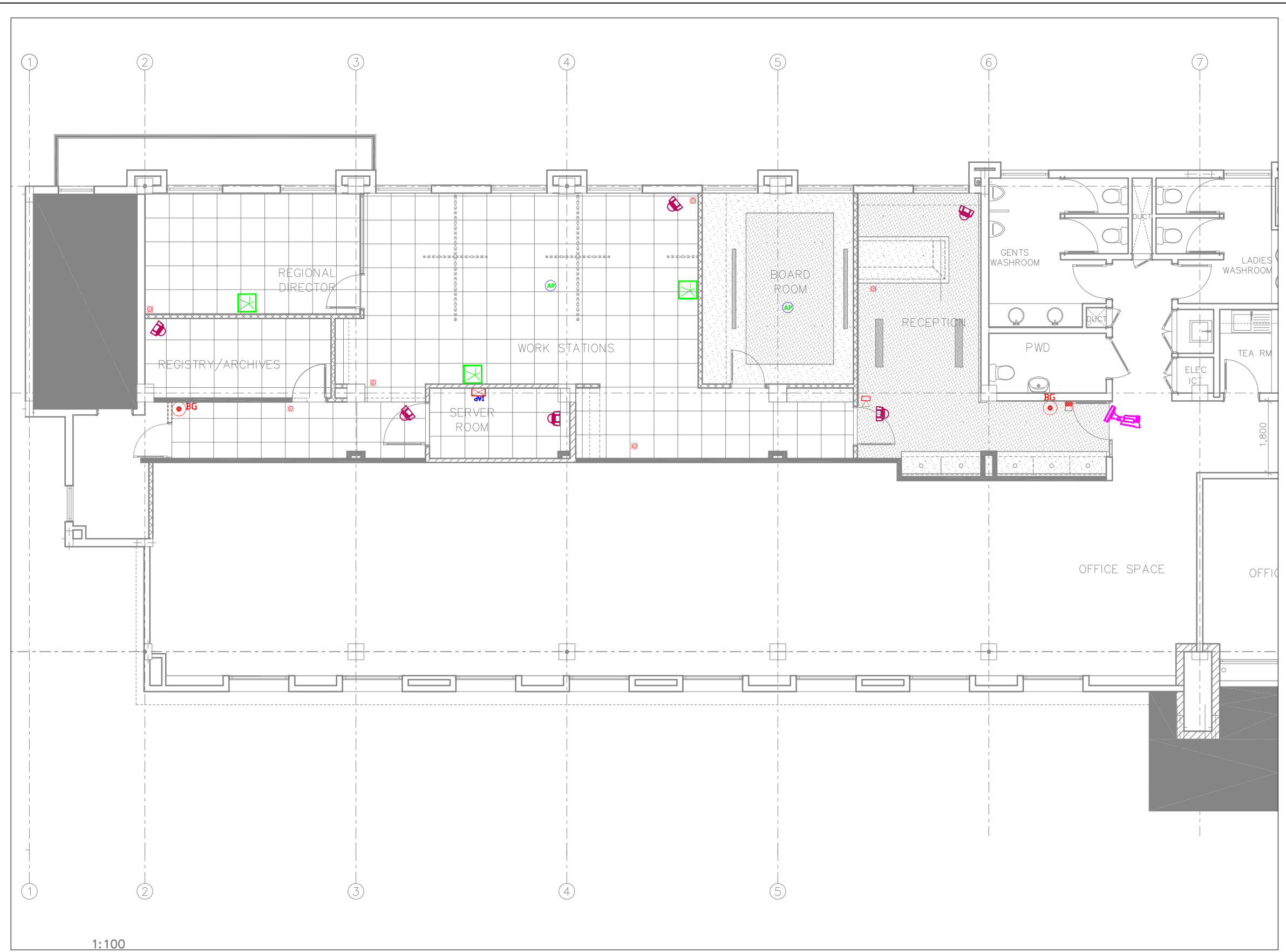
Rev Date: **03rd.05.2021**

Designed By: **IV**

Drawn By: **IV**

Checked by: **MS**


Approved by: **VBAK**



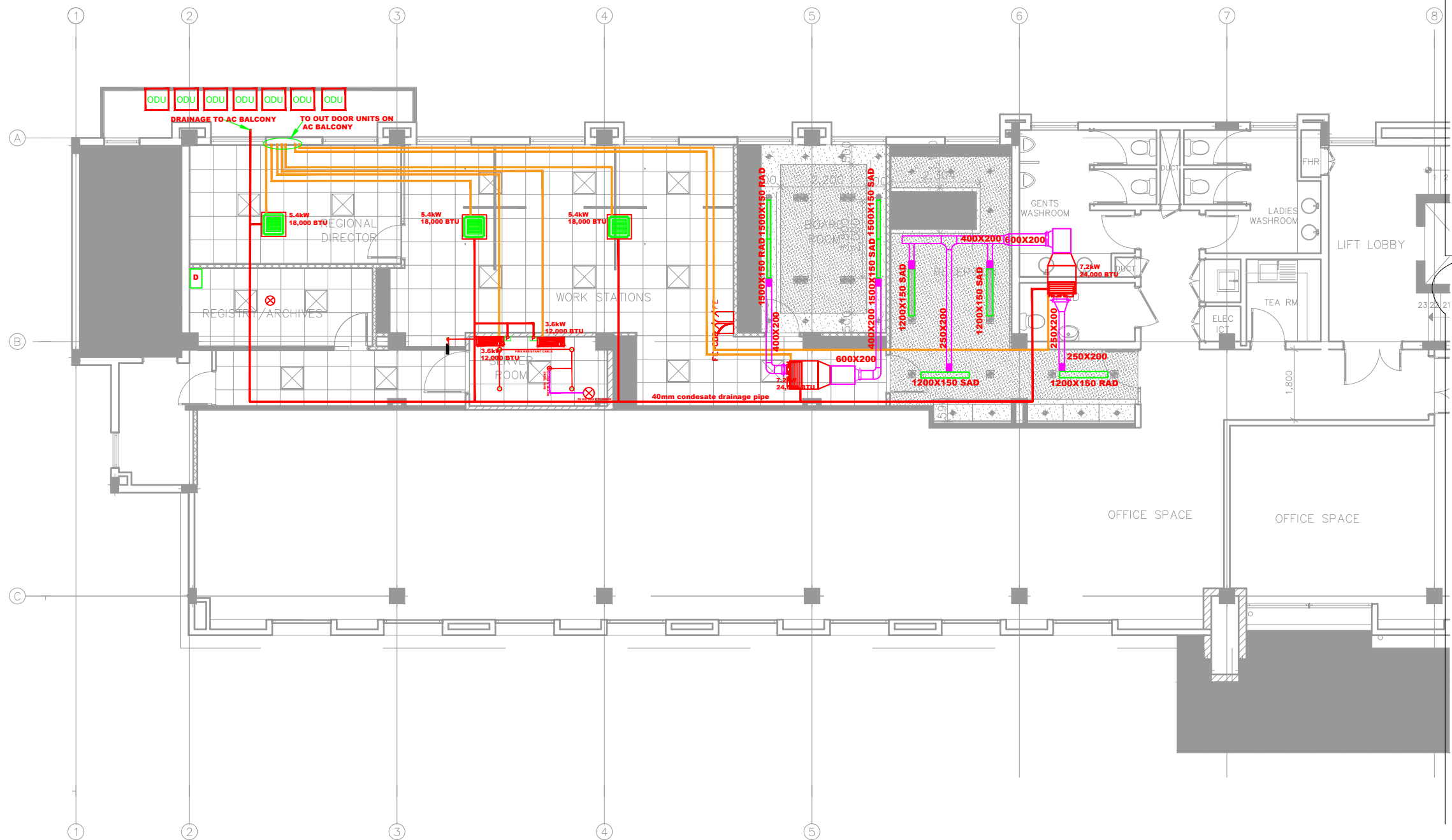
LEGEND

	4MP IP Bullet Camera
	4MP IP Dome Camera
	Intrusion alarm sounder on the ceiling
	Intrusion Alarm panel
	Key pad
	PIR motion sensor
	Wireless Access Point
	Glass break sensors

NOTES:
 01- LAYOUT TO BE READ IN CONJUNCTION WITH AC LAYOUT.
 02- FINAL POSITIONS AS PER THE ARCHITECT'S REFLECTED CEILING PLAN TO APPROVAL.

 <p>IMK ENGINEERING CO LTD CONSULTING ENGINEERS PLOT 66 VALLEY DRIVE MINISTERS VILLAGE, NTINDA P.O.Box 16587 Kampala Email: imkeng.ltd@gmail.com</p>	Project: PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI PLOT 7, BANDALI RISE	Drawing Title: SECURITY & CCTV: CEILING PLAN	Designed By: IV
	Client: KENYA REINSURANCE CORPORATION LTD P.O.BOX 30271 00 100 NAIROBI, KENYA	Drawing No: E05	Drawn By: IV
	Architect: SYMBION <small>STRONG HOUSE, PLOT 11, BANDALI, P.O. BOX 16587, KAMPALA, UGANDA TEL: +256(41)209142/248065, +256(31)202052 E-mail: spt@strongandsymbion-ug.com WEBSITE: www.symbion-ug.com</small>	Job No: IMK/20/04	Checked by: MS
		Date: JANUARY 2020 Rev Date: 03rd.05.2021	Approved by: VBAK

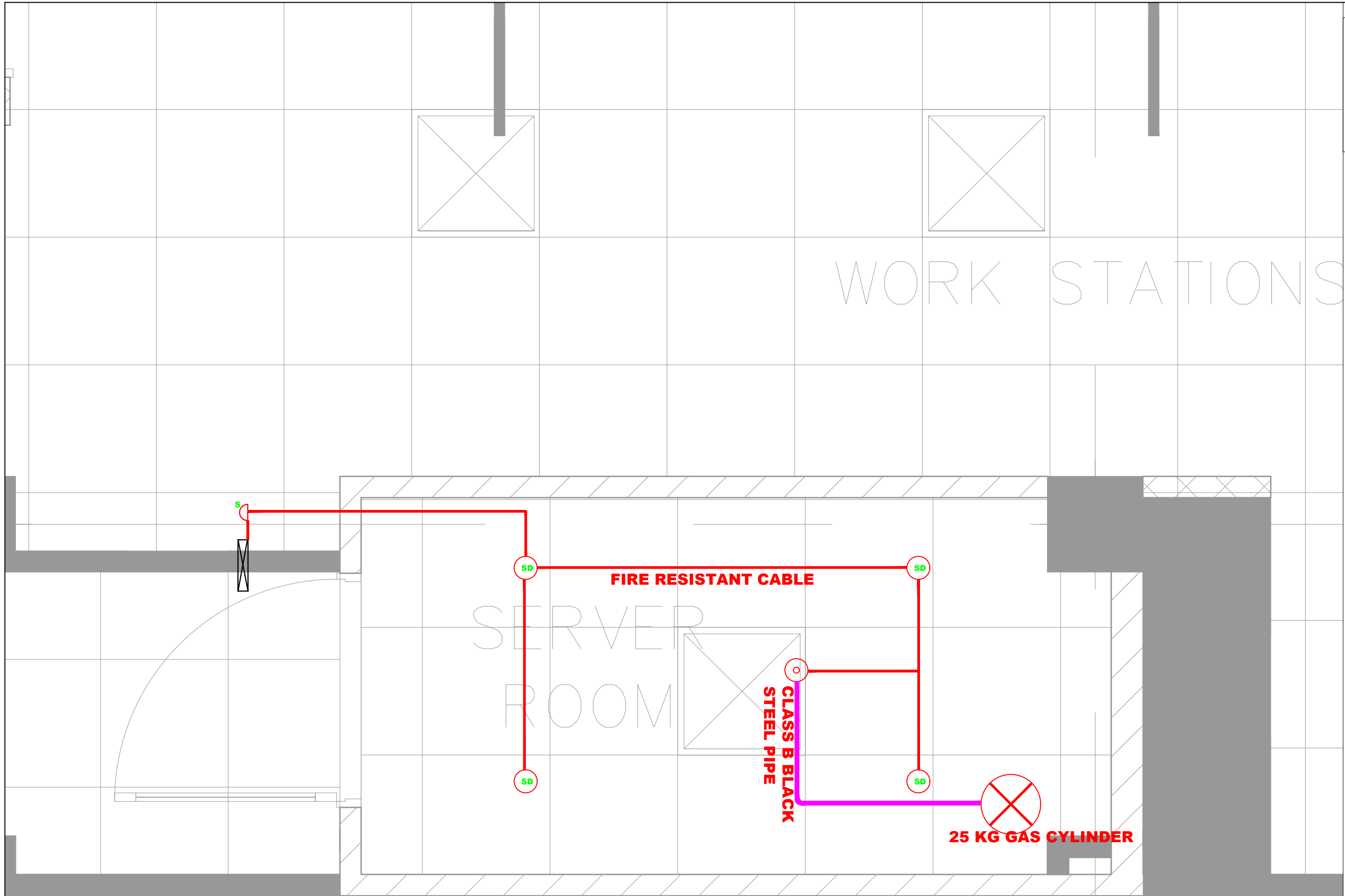
LEGEND	
	Air Duct
	Water Pipe
	Cooling Water Pipe
	Hot Water Pipe
	Condensate Drainage Pipe
	40mm Condensate Drainage Pipe
	Room Air Conditioner
	Water Meter Unit
	Fire Equipment
	AC Unit Pump
	Demarcation
	Water Meter Enclosure



L[45]01 REFLECTED CEILING PLAN
1:100

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 Tel:+256-782-793-581

Project:	PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI 7, BANDALI RISE	Drawing Title:	AIR CONDITIONING AND FIRE FIGHTING LAYOUT	Designed By:	IS	Revision Notes:	
Client:	KENYA REINSURANCE CORPORATION LTD. P.O BOX 30271, NAIROBI, KENYA	Drawing No:	M01	Drawn By:	JB	Revision Date:	03/MAY/2021
Architect:	SYMBION	Job No:	IMK/20/04	Checked by:	IS	Revision No:	
Date:	MAY, 2021	Scale:	NA	Approved by:	VBAK		



LEGEND	
	Sprinkler head
	FM 200 gas cylinder
	Control Panel
	Smoke Detector
	Sounder
	25mm Class B black steel pipe
	Fire resistant cable

IMK ENGINEERING CO LTD CONSULTING ENGINEERS PLOT 66 VALLEY DRIVE, MINISTERS VILLAGE NTINDA, P.O.Box 16587 Kampala Email:imkeng.ltd@gmail.com Tel:+256-782-793-581	Project: PROPOSED FIT OUT OF KENYA REINSURANCE OFFICES AT RED STONE HOUSE, BUGOLOBI 7, BANDALI RISE	Drawing Title: SERVER ROOM FIRE FIGHTING LAYOUT	Designed By: IS	Revision Notes:
	Client: KENYA REINSURANCE CORPORATION LTD. P.O BOX 30271, NAIROBI, KENYA	Drawing No: M02	Drawn By: JB	Revision Date: 03/MAY/2021
	Architect: SYMBION	Job No: IMK/20/04	Checked by: IS	Revision No:
	Date: MAY, 2021	Scale: NA	Approved by: VBAK	

PART III - CONDITIONS OF CONTRACT AND CONTRACT FORMS

SECTION VIII - GENERAL CONDITIONS OF CONTRACT

These General Conditions of Contract (GCC), read in conjunction with the Special Conditions of Contract (SCC) 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.

General Conditions of Contract

A. General

1. Definitions

1.1 Bold face type is used to identify defined terms.

- a) **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.
- b) **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.
- c) **The Adjudicator** is the person appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in GCC 23.
- d) **Bill of Quantities** means the priced and completed Bill of Quantities forming part of the Bid.
- e) **Compensation Events** are those defined in GCC Clause 42 hereunder.
- f) **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.
- g) **The Contract** is the Contract between the Procuring Entity and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC Sub-Clause 2.3 below.
- h) **The Contractor** is the party whose Bid to carry out the Works has been accepted by the Procuring Entity.
- i) **The Contractor's Bid** is the completed bidding document submitted by the Contractor to the Procuring Entity.
- j) **The Contract Price** is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.
- k) **Days** are calendar days; months are calendar months.
- l) **Day works** 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.
- m) **A Defect** is any part of the Works not completed in accordance with the Contract.
- n) **The Defects Liability Certificate** is the certificate issued by Project Manager upon correction of defects by the Contractor.
- o) **The Defects Liability Period** is the period **named in the SCC** pursuant to Sub-Clause 34.1 and calculated from the Completion Date.
- p) **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 Procuring Entity in accordance with the Contract, include calculations and other information provided or approved by the Project Manager for the execution of the Contract.
- q) **The Procuring Entity** is the party who employs the Contractor to carry out the Works, **as specified in the SCC**, who is also the Procuring Entity.
- r) **Equipment** is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

- s) **“In writing” or “written”** means hand-written, type-written, printed or electronically made, and resulting in a permanent record;
- t) The Initial Contract Price is the Contract Price listed in the Procuring Entity's Letter of Acceptance.
- u) **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 SCC**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.
- v) **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.
- w) **Plant** is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.
- x) **The Project Manager** is the person **named in the SCC** (or any other competent person appointed by the Procuring Entity 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.
- y) **SCC** means Special Conditions of Contract.
- z) **The Site** is the area of the works as **defined as such in the SCC**.
- aa) **Site Investigation Reports** are those that were included in the bidding document and are factual and interpretative reports about the surface and subsurface conditions at the Site.
- bb) **Specification** means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.
- cc) **The Start Date** is **given in the SCC**. 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.
- dd) **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.
- ee) **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.
- ff) **A Variation** is an instruction given by the Project Manager which varies the Works.
- gg) **The Works** are what the Contract requires the Contractor to construct, install, and turn over to the Procuring Entity, **as defined in the SCC**.

2. Interpretation

- 21 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.
- 22 If sectional completion is specified in the SCC, 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).
- 23 The documents forming the Contract shall be interpreted in the following order of priority:
 - a) Agreement,
 - b) Letter of Acceptance,
 - c) Contractor's Bid,
 - d) Special Conditions of Contract,
 - e) General Conditions of Contract, including Appendices,
 - f) Specifications,
 - g) Drawings,
 - h) Bill of Quantities⁶, and
 - i) any other document **listed in the SCC** as forming part of the Contract.

⁶In lump sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule.”

3. Language and Law

- 3.1 The language of the Contract is English Language and the law governing the Contract are the Laws of Kenya.
- 3.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Procuring Entity's Country when
 - a) as a matter of law or official regulations, Kenya 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, Kenya prohibits any import of goods from that country or any payments to any country, person, or entity in that country.

4. Project Manager's Decisions

- 4.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Procuring Entity and the Contractor in the role representing the Procuring Entity.

5. Delegation

- 5.1 Otherwise **specified in the SCC**, 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.

6. Communications

- 6.1 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.

7. Subcontracting

- 7.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Procuring Entity in writing. Subcontracting shall not alter the Contractor's obligations.

8. Other Contractors

- 8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Procuring Entity between the dates given in the Schedule of Other Contractors, as **referred to in the SCC**. The Contractor shall also provide facilities and services for them as described in the Schedule. The Procuring Entity may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

9. Personnel and Equipment

- 9.1 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.
- 9.2 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.
- 9.3 If the Procuring Entity, Project Manager or Contractor determines, that any employee of the Contractor be determined to have engaged in Fraud and Corruption during the execution of the Works, then that employee shall be removed in accordance with Clause 9.2 above.

10. Procuring Entity's and Contractor's Risks

10.1 The Procuring Entity carries the risks which this Contract states are Procuring Entity's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Procuring Entity's Risks

11.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Procuring Entity's risks:

- a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to
 - i) 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
 - ii) negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or contracted to him except the Contractor.
- b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

11.2 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 a Procuring Entity's risk except loss or damage due to

- aa) a Defect which existed on the Completion Date,
- bb) an event occurring before the Completion Date, which was not itself a Procuring Entity's risk, or
- cc) the activities of the Contractor on the Site after the Completion Date.

12. 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 Procuring Entity's risks are Contractor's risks.

13. Insurance

13.1 The Contractor shall provide, in the joint names of the Procuring Entity 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 SCC** for the following events which are due to the Contractor's risks:

- a) loss of or damage to the Works, Plant, and Materials;
- b) loss of or damage to Equipment;
- c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
- d) personal injury or death.

13.2 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.

13.3 If the Contractor does not provide any of the policies and certificates required, the Procuring Entity may affect the insurance which the Contractor should have provided and recover the premiums the Procuring Entity 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.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Project Manager.

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Data

14.1 The Contractor shall be deemed to have examined any Site Data **referred to in the SCC**, supplemented by any information available to the Contractor.

15. Contractor to Construct the Works

15.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.

16. The Works to Be Completed by the Intended Completion Date

16.1 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.

17. Approval by the Project Manager

17.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.

17.2 The Contractor shall be responsible for design of Temporary Works.

17.3 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

17.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

17.5 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.

18. Safety

18.1 The Contractor shall be responsible for the safety of all activities on the Site.

19. Discoveries

19.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Procuring Entity. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.

20. Possession of the Site

20.1 The Procuring Entity 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 SCC**, the Procuring Entity shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.

21. Access to the Site

21.1 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.

22. Instructions, Inspections and Audits

22.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.

22.2 The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and sub-consultants 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.

22.3 The Contractor shall permit and shall cause its subcontractors and sub-consultants to permit, the Procuring Entity and/or persons appointed by the Public Procurement Regulatory Authority to inspect the Site and/or the accounts and records relating to the procurement process, selection and/or contract

execution, and to have such accounts and records audited by auditors appointed by the Public Procurement Regulatory Authority. The Contractor's and its Subcontractors' and sub-consultants' attention is drawn to Sub-Clause 25.1 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Public Procurement Regulatory Authority's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Public Procurement Regulatory Authority's prevailing sanctions procedures).

23. Appointment of the Adjudicator

- 23.1 The Adjudicator shall be appointed jointly by the Procuring Entity and the Contractor, at the time of the Procuring Entity's issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Procuring Entity does not agree on the appointment of the Adjudicator, the Procuring Entity will request the Appointing Authority designated in the SCC, to appoint the Adjudicator within 14 days of receipt of such request.
- 23.2 Should the Adjudicator resign or die, or should the Procuring Entity 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 Procuring Entity and the Contractor. In case of disagreement between the Procuring Entity and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the SCC at the request of either party, within 14 days of receipt of such request.

24. Settlement of Claims and Disputes

24.1 Contractor's Claims

- 24.1.1 If the Contractor considers itself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give Notice to the Project Manager, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 30 days after the Contractor became aware, or should have become aware, of the event or circumstance.
- 24.1.2 If the Contractor fails to give notice of a claim within such period of 30 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub- Clause shall apply.
- 24.1.3 The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.
- 24.1.4 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Project Manager. Without admitting the Procuring Entity's liability, the Project Manager may, after receiving any notice under this Sub-Clause, monitor the record- keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Project Manager to inspect all these records, and shall (if instructed) submit copies to the Project Manager.
- 24.1.5 Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Project Manager, the Contractor shall send to the Project Manager a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:
- a) this fully detailed claim shall be considered as interim;
 - b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Project Manager may reasonably require; and
 - c) the Contractor shall send a final claim within 30 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Project Manager.

- 24.1.6 Within 42 days after receiving a Notice of a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Project Manager and approved by the Contractor, the Project Manager shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.
- 24.1.7 Within the above defined period of 42 days, the Project Manager shall proceed in accordance with Sub-Clause
- 24.1.8 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.
- 24.1.9 Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.
- 24.1.10 If the Project Manager does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Project Manager and any of the Parties may refer to Arbitration in accordance with Sub-Clause 24.4 [Arbitration].
- 24.1.11 The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause 24.3.

242 Amicable Settlement

- 24.2.1 Where a notice of a claim has been given, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a notice of a claim in accordance with Sub-Clause 24.1 above should move to commence arbitration after the fifty-sixth day from the day on which a notice of a claim was given, even if no attempt at an amicable settlement has been made.

243 Matters that may be referred to arbitration

- 24.3.1 Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the Works or abandonment of the Works or termination of the Contract by either party:
- a) The appointment of a replacement Project Manager upon the said person ceasing to act.
 - b) Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.
 - c) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
 - e) Any dispute arising in respect of war risks or war damage.
 - f) All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless the Procuring Entity and the Contractor agree otherwise in writing.

244 Arbitration

- 24.4.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 24.3 shall be finally settled by arbitration.
- 24.4.2 No arbitration proceedings shall be commenced on any claim or dispute where notice of a claim or dispute has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.
- 24.4.3 Notwithstanding the issue of a notice as stated above, the arbitration of such a claim or dispute shall not commence unless an attempt has in the first instance been made by the parties to settle such claim or dispute amicably with or without the assistance of third parties. Proof of such attempt shall be required.
- 24.4.4 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or

included in any certificate.

- 24.4.5 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.
- 24.4.6 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Project Manager, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Project Manager from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.
- 24.4.7 Neither Party shall be limited in the proceedings before the arbitrators to the evidence, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction.
- 24.4.8 Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, and the Project Manager shall not be altered by reason of any arbitration being conducted during the progress of the Works.
- 24.4.9 The terms of the remuneration of each or all the members of Arbitration shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

24.5 Arbitration with National Contractors

- 24.5.1 If the Contract is with national contractors, arbitration proceedings will be conducted in accordance with the Arbitration Laws of Kenya. In case of any claim or dispute, such claim or dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed, on the request of the applying party, by the Chairman or Vice Chairman of any of the following professional institutions;
- i) Architectural Association of Kenya
 - ii) Institute of Quantity Surveyors of Kenya
 - iii) Association of Consulting Engineers of Kenya
 - iv) Chartered Institute of Arbitrators (Kenya Branch)
 - v) Institution of Engineers of Kenya
- 24.5.2 The institution written to first by the aggrieved party shall take precedence over all other institutions.

24.6 Alternative Arbitration Proceedings

- 24.6.1 Alternatively, the Parties may refer the matter to the Nairobi Centre for International Arbitration (NCIA) which offers a neutral venue for the conduct of national and international arbitration with commitment to providing institutional support to the arbitral process.

24.7 Failure to Comply with Arbitrator's Decision

- 24.7.1 The award of such Arbitrator shall be final and binding upon the parties.
- 24.7.2 In the event that a Party fails to comply with a final and binding Arbitrator's decision, then the other Party may, without prejudice to any other rights it may have, refer the matter to a competent court of law.

24.8 Contract operations to continue

- 24.8.1 Notwithstanding any reference to arbitration herein,
- a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
 - b) the Procuring Entity shall pay the Contractor any monies due the Contractor.

25. Fraud and Corruption

- 25.1 The Government requires compliance with the country's Anti-Corruption laws and its prevailing sanctions policies and procedures as set forth in the Constitution of Kenya and its Statutes.
- 25.2 The Procuring Entity 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

26. Program

- 26.1 Within the time stated in the SCC, 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.
- 26.2 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.
- 26.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the SCC 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.
- 26.4 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.

27. Extension of the Intended Completion Date

- 27.1 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.
- 27.2 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.

28. Acceleration

- 28.1 When the Procuring Entity 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 Procuring Entity accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.
- 28.2 If the Contractor's priced proposals for an acceleration are accepted by the Procuring Entity, they are incorporated in the Contract Price and treated as a Variation.

29. Delays Ordered by the Project Manager

- 29.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.

30. Management Meetings

- 30.1 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.
- 30.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Procuring Entity. 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.

31. EarlyWarning

- 31.1 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.
- 31.2 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

32. Identifying Defects

- 32.1 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.

33. Tests

- 33.1 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.

34. Correction of Defects

- 34.1 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 SCC. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 34.2 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.

35. Uncorrected Defects

- 35.1 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

36. Contract Price⁷

- 36.1 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.

37. Changes in the Contract Price⁸

- 37.1 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 Procuring Entity.
- 37.2 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.

38. Variations

- 381 All Variations shall be included in updated Programs⁹ produced by the Contractor.
- 382 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.
- 383 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.
- 384 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.
- 385 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning
- 386 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
- 387 Value Engineering: The Contractor may prepare, at its own cost, a value engineering proposal at any time during the performance of the contract. The value engineering proposal shall, at a minimum, include the following;
- a) the proposed change(s), and a description of the difference to the existing contract requirements;
 - b) a full cost/benefit analysis of the proposed change(s) including a description and estimate of costs (including life cycle costs) the Procuring Entity may incur in implementing the value engineering proposal; and
 - c) a description of any effect(s) of the change on performance/functionality.
- 388 The Procuring Entity may accept the value engineering proposal if the proposal demonstrates benefits that:
- a) accelerate the contract completion period; or
 - b) reduce the Contract Price or the life cycle costs to the Procuring Entity; or
 - c) improve the quality, efficiency, safety or sustainability of the Facilities; or
 - d) yield any other benefits to the Procuring Entity, without compromising the functionality of the Works.
- 389 If the value engineering proposal is approved by the Procuring Entity and results in:
- a) a reduction of the Contract Price; the amount to be paid to the Contractor shall be the **percentage specified in the SCC** of the reduction in the Contract Price; or
 - b) an increase in the Contract Price; but results in a reduction in life cycle costs due to any benefit described in
(a) to (d) above, the amount to be paid to the Contractor shall be the full increase in the Contract Price.

39. Cash Flow Forecasts

- 391 When the Program¹¹, 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.

40. Payment Certificates

- 401 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

- 402 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- 403 The value of work executed shall be determined by the Project Manager.
- 404 The value of work executed shall comprise the value of the quantities of work in the Bill of Quantities that have been completed¹².
- 405 The value of work executed shall include the valuation of Variations and Compensation Events.
- 406 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.
- 407 Where the contract price is different from the corrected tender price, in order to ensure the contractor is not paid less or more relative to the contract price (which would be the tender price), payment valuation certificates and variation orders on omissions and additions valued based on rates in the Bill of Quantities or schedule of rates in the Tender, will be adjusted by a plus or minus percentage. The percentage already worked out during tender evaluation is worked out as follows: $(\text{corrected tender price} - \text{tender price}) / \text{tender price} \times 100$.

41. Payments

- 41.1 Payments shall be adjusted for deductions for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of each certificate. If the Procuring Entity 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.
- 41.2 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.
- 41.3 Unless otherwise stated, all payments and deductions shall be paid or charged in the proportions of currencies comprising the Contract Price.
- 41.4 Items of the Works for which no rate or price has been entered in shall not be paid for by the Procuring Entity and shall be deemed covered by other rates and prices in the Contract.

42. Compensation Events

- 42.1 The following shall be Compensation Events:
- d) The Procuring Entity does not give access to a part of the Site by the Site Possession Date pursuant to GCC Sub-Clause 20.1.
 - e) The Procuring Entity modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.
 - f) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.
 - g) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.
 - h) The Project Manager unreasonably does not approve a subcontract to be let.
 - i) 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.
 - j) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Procuring Entity, or additional work required for safety or other reasons.
 - k) Other contractors, public authorities, utilities, or the Procuring Entity does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
 - l) The advance payment is delayed.

- m) The effects on the Contractor of any of the Procuring Entity's Risks.
- n) The Project Manager unreasonably delays issuing a Certificate of Completion.

422 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.

423 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.

424 The Contractor shall not be entitled to compensation to the extent that the Procuring Entity's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.

43. Tax

431 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 30 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.

44. Currency of Payment

441 All payments under the contract shall be made in US Dollars

45. Price Adjustment

451 Prices shall be adjusted for fluctuations in the cost of inputs only if **provided for in the SCC**. 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:

$$P = A + B I_m / I_o$$

where: P is the adjustment factor for the portion of the Contract Price payable.

A and B are coefficients¹³ **specified in the SCC**, representing the non-adjustable and adjustable portions, respectively, of the Contract Price payable and I_m is the index prevailing at the end of the month being invoiced and I_o is the index prevailing 30 days before Bid opening for inputs payable.

452 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.

46. Retention

461 The Procuring Entity shall retain from each payment due to the Contractor the proportion stated in the **SCC** until Completion of the whole of the Works.

462 Upon the issue of a Certificate of Completion of the Works by the Project Manager, in accordance with GCC 53.1, 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.

47. Liquidated Damages

471 The Contractor shall pay liquidated damages to the Procuring Entity at the rate per day stated in the **SCC** 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 SCC. The Procuring Entity may deduct

liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

472 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.

48. Bonus

481 The Contractor shall be paid a Bonus calculated at the rate per calendar day **stated in the SCC** 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.

49. Advance Payment

491 The Procuring Entity shall make advance payment to the Contractor of the amounts stated in the **SCC** by the date stated in the **SCC**, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Procuring Entity 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.

492 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.

493 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.

50. Securities

501 The Performance Security shall be provided to the Procuring Entity no later than the date specified in the Letter of Acceptance and shall be issued in an amount **specified in the SCC**, by a bank or surety acceptable to the Procuring Entity, 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 day 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.

51. Dayworks

511 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.

512 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.

513 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

52. Cost of Repairs

521 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

53. Completion

531 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.

54. Taking Over

541 The Procuring Entity shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.

55. Final Account

551 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.

Operating and Maintenance Manuals

552 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the SCC.

553 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the SCC 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 SCC** from payments due to the Contractor.

56. Termination

561 The Procuring Entity or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

562 Fundamental breaches of Contract shall include, but shall not be limited to, the following:

- a) the Contractor stops work for 30 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager;
- b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days;
- c) the Procuring Entity or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- d) a payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within 84 days of the date of the Project Manager's certificate;
- e) 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;
- f) the Contractor does not maintain a Security, which is required;
- g) 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 SCC**; or
- h) if the Contractor, in the judgment of the Procuring Entity has engaged in Fraud and Corruption, as defined in paragraph 2.2 a of the Appendix A to the GCC, in competing for or in executing the Contract, then the Procuring Entity may, after giving fourteen (14) days written notice to the Contractor, terminate the Contract and expel him from the Site.

563 Notwithstanding the above, the Procuring Entity may terminate the Contract for convenience.

564 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.

565 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.

57. Payment upon Termination

571 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 SCC. Additional Liquidated Damages shall not apply. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.

572 If the Contract is terminated for the Procuring Entity's convenience or because of a fundamental breach of Contract by the Procuring Entity, 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.

58. Property

58.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Procuring Entity if the Contract is terminated because of the Contractor's default.

59. Release from Performance

59.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Procuring Entity 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.

SECTION IX - SPECIAL CONDITIONS OF CONTRACT

Except where otherwise specified, all Special Conditions of Contract should be filled in by the Procuring Entity prior to issuance of the bidding document. Schedules and reports to be provided by the Procuring Entity should be annexed.

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
A. General	
GCC 1.1 (q)	The Procuring Entity is Kenya Reinsurance Corporation Ltd P.O Box 30271-00100, Nairobi Email: Procurement@kenyare.co.ke, Tel: 0703 083 200.
GCC 1.1 (u)	The Intended Completion Date for the whole of the Works shall be: <i>[If different dates are specified for completion of the Works by section ("sectional completion" or milestones), these dates should be listed here]</i>
GCC 1.1 (x)	The Project Manager is SYMBION UGANDA LIMITED P.O. BOX 7671 KAMPALA, UGANDA
GCC 1.1 (z)	The Site is located at FIRST FLOOR, REDSTONE HOUSE, PLOT 07 BANDALI RISE, KAMPALA, UGANDA
GCC 1.1 (cc)	The Start Date shall be advised after contract award
GCC 1.1 (gg)	The Works consist of OFFICE FITOUT AND ASSOCIATED ELECTRICAL, MECHANICAL, ICT & CCTV WORKS
GCC 2.2	Sectional Completions are: *To be agreed with employer*
GCC 5.1	The Project manager may <i>[may or may not]</i> delegate any of his duties and responsibilities.
GCC 8.1	Schedule of other contractors: <i>[insert Schedule of Other Contractors, if appropriate]</i>
GCC 9.1	<p>Key Personnel</p> <p>GCC 9.1 is replaced with the following:</p> <p>9.1 Key Personnel are the Contractor's personnel named in this GCC 9.1 of the Special Conditions of Contract. 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.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>[insert the name/s of each Key Personnel agreed by the Procuring Entity prior to Contract signature.]</p>

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
GCC 13.1	<p>The minimum insurance amounts and deductibles shall be:</p> <p>(a) for loss or damage to the Works, Plant and Materials: Full value of works..... <i>[insert amounts]</i>.</p> <p>(b) For loss or damage to Equipment: Full value of equipment..... <i>[insert amounts]</i>.</p> <p>(c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract Kshs. (20) Twenty Million <i>[insert amounts]</i>.</p> <p>(d) for personal injury or death:</p> <p>(i) of the Contractor's employees: As per applicable laws of Kenya – Work Injury Benefits Act (WIBA) <i>[amount]</i>.</p> <p>(ii) of other people: Unlimited <i>[amount]</i>.</p>
GCC 14.1	Site Data are: <i>[list Site Data]</i>
GCC 20.1	The Site Possession Date(s) shall be: <i>[insert location(s) and date(s)]</i>
B. Time Control	
GCC 26.1	The Contractor shall submit for approval a Program for the Works within (14) Fourteen days from the date of the Letter of Acceptance.
GCC 26.3	<p>The period between Program updates is (60) Sixty days.</p> <p>The amount to be withheld for late submission of an updated Program is Kshs. 50,000/- Fifty Thousand</p>
C. Quality Control	
GCC 34.1	The Defects Liability Period is: (6) Six months .
D. Cost Control	
GCC 38.9	If the value engineering proposal is approved by the Procuring Entity the amount to be paid to the Contractor shall be _50%_ % <i>(insert appropriate percentage. The percentage is normally up to 50%)</i> of the reduction in the Contract Price.
GCC 44.1	The currency of the Procuring Entity's Country is: Kenya Shillings & US Dollars
GCC 45.1	<p>The Contract is not subject to price adjustment in accordance with GCC Clause 45, and the following information regarding coefficients <i>[specify "does" or "does not"]</i> apply.</p> <p><i>[Price adjustment is mandatory for contracts which provide for time of completion exceeding 18 months]</i></p> <p>The coefficients for adjustment of prices are:</p> <p>(a) <i>[insert percentage]</i> percent nonadjustable element (coefficient A).</p> <p>(b) <i>[insert percentage]</i> percent adjustable element (coefficient B).</p> <p>(c) The Index I for shall be <i>[insert index]</i>.</p>

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
GCC 46.1	The proportion of payments retained is: 10% Ten percent <i>[The retention amount is usually close to 5 percent and in no case exceeds 10 percent.]</i>
GCC 47.1	The liquidated damages for the whole of the Works are USD 200.00 PER DAY . The maximum amount of liquidated damages for the whole of the Works is (10%) Ten Percent of the final Contract Price.
GCC 49.1	The Advance Payments shall be: 20% of contract sum and shall be paid to the Contractor no later than (30) Thirty days from submission of approved advance payment guarantee .
GCC 50.1	The Performance Security amount is 10% Ten Percent of contract sum (a) Performance Security – Bank Guarantee: in the amount(s) of <i>[insert related figure(s)]</i> percent of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount. N/A (b) Performance Security – Performance Bond: in the amount(s) of equivalent of (10%) One percent of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount.
E. Finishing the Contract	
GCC 56.1	The date by which operating and maintenance manuals are required is at intended completion date The date by which “as built” drawings are required is at intended completion date <i>[insert date]</i> .
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 Kshs. (50,000/-) Fifty Thousand
GCC 57.2 (g)	The maximum number of days is: (50) Fifty days <i>[insert number; consistent with Clause 47.1 on liquidated damages]</i> .
GCC 58.1	The percentage to apply to the value of the work not completed, representing the Procuring Entity’s additional cost for completing the Works, is 10% Ten Percent .

FORM No 1: NOTIFICATION OF INTENTION TO AWARD

This Notification of Intention to Award shall be sent to each Tenderer that submitted a Tender. Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form on the format below.

FORMAT

1. For the attention of Tenderer's Authorized Representative

- i) Name: *[insert Authorized Representative's name]*
- ii) Address: *[insert Authorized Representative's Address]*
- iii) Telephone: *[insert Authorized Representative's telephone/fax numbers]*
- iv) Email Address: *[insert Authorized Representative's email address]*

[IMPORTANT: insert the date that this Notification is transmitted to Tenderers. The Notification must be sent to all Tenderers simultaneously. This means on the same date and as close to the same time as possible.]

2. Date of transmission: *[email]* on *[date]* (local time)

This Notification is sent by *(Name and designation)* _____

3. Notification of Intention to Award

- i) Procuring Entity: *[insert the name of the Procuring Entity]*
- ii) Project: *[insert name of project]*
- iii) Contract title: *[insert the name of the contract]*
- iv) Country: *[insert country where ITT is issued]*
- v) ITT No: *[insert ITT reference number from Procurement Plan]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period, you may:

4. Request a debriefing in relation to the evaluation of your tender

Submit a Procurement-related Complaint in relation to the decision to award the contract.

a) The successful tenderer

- i) Name of successful Tender _____
- ii) Address of the successful Tender _____
- iii) Contract price of the successful Tender Kenya Shillings _____
(in words) _____

b) Other Tenderers

Names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out. For Tenders not evaluated, give one main reason the Tender was unsuccessful.

SNo	Name of Tender	Tender Price as read out	Tender's evaluated price (Note a)	One Reason Why not Evaluated
1				
2				
3				
4				
5				

(Note a) State NE if not evaluated

5. How to request a debriefing

- a) DEADLINE: The deadline to request a debriefing expires at midnight on *[insert date]* (local time).
- b) You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (5) Business Days of receipt of this Notification of Intention to Award.
- c) Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:
 - i) Attention: *[insert full name of person, if applicable]*
 - ii) Title/position: *[insert title/position]*
 - ii) Agency: *[insert name of Procuring Entity]*
 - iii) Email address: *[insert email address]*
- d) If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within five (3) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (3) Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.
- e) The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.
- f) If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Days from the date of publication of the Contract Award Notice.

6. How to make a complaint

- a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, *[insert date]* (local time).
- b) Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:
 - i) Attention: *[insert full name of person, if applicable]*
 - ii) Title/position: *[insert title/position]*
 - iii) Agency: *[insert name of Procuring Entity]*
 - iv) Email address: *[insert email address]*
- c) At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.
- d) Further information: For more information refer to the Public Procurement and Disposals Act 2015 and its Regulations available from the Website info@ppra.go.ke or complaints@ppra.go.ke. You should read these documents before preparing and submitting your complaint.

- e) There are four essential requirements:
- i) You must be an 'interested party'. In this case, that means a Tenderer who submitted a Tender in this tendering process, and is the recipient of a Notification of Intention to Award.
 - ii) The complaint can only challenge the decision to award the contract.
 - iii) You must submit the complaint within the period stated above.
 - iv) You must include, in your complaint, all of the information required to support your complaint.

7. Standstill Period

- i) DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).
- ii) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.
- iii) The Standstill Period may be extended as stated in paragraph Section 5 (d) above.

If you have any questions regarding this Notification please do not hesitate to contact us. On behalf of the Procuring Entity:

Signature: _____ **Name:** _____

Title/position: _____ **Telephone:** ___ **Email:** _____

FORM NO. 2 - REQUEST FOR REVIEW

FORM FOR REVIEW(r.203(1))

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....**APPLICANT**

AND

.....**RESPONDENT (Procuring Entity)**

Request for review of the decision of the..... (Name of the Procuring Entity ofdated the...day of20.....in the matter of Tender No.....of20..... for(Tender description).

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical address.....P. O. Box No..... Tel. No.....Email, hereby request the Public Procurement Administrative Review Board to review the whole/part of the above mentioned decision on the following grounds , namely:

- 1.
- 2.

By this memorandum, the Applicant requests the Board for an order/orders that:

- 1.
- 2.

SIGNED(Applicant) Dated on.....day of/...20.....

FOR OFFICIAL USE ONLY Lodged with the Secretary Public Procurement Administrative Review Board on.....day of20.....

SIGNED

Board Secretary

FORM NO 3: LETTER OF AWARD

[letterhead paper of the Procuring Entity] [date]

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

This is to notify you that your Tender dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers, is hereby accepted by
(name of Procuring Entity).

You are requested to furnish the Performance Security within 30 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section VIII, Contract Forms, of the Tender Document.

Authorized Signature:.....

Name and Title of Signatory:.....

Name of Procuring Entity.....

Attachment: *Contract Agreement*.....

FORM NO 4: CONTRACT AGREEMENT

THIS AGREEMENT made the _____ day of _____, 20____, between _____ of _____ (hereinafter "the Procuring Entity"), of the one part, and _____ of _____ (hereinafter "the Contractor"), of the other part:

WHEREAS the Procuring Entity desires that the Works known as _____ should be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Procuring Entity 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.
 - a) the Letter of Acceptance
 - b) the Letter of Tender
 - c) the addenda Nos _____ (if any)
 - d) the Special Conditions of Contract
 - e) the General Conditions of Contract;
 - f) the Specifications
 - g) the Drawings; and
 - h) the completed Schedules and any other documents forming part of the contract.
3. In consideration of the payments to be made by the Procuring Entity to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Procuring Entity to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Procuring Entity 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 Kenya on the day, month and year specified above.

Signed and sealed by _____ (for the Procuring Entity)

Signed and sealed by _____ (for the Contractor).

FORM NO. 5 - PERFORMANCE SECURITY

[Option 1 - Unconditional Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[insert name and Address of Procuring Entity]* **Date:** _____
_____ *[Insert date of issue]*

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

1. We have been informed that _____ (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with (*name of Procuring Entity*) _____ (the Procuring Entity as the Beneficiary), for the execution of _____ (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.
3. At the request of the Contractor, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (*in words*),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.
4. This guarantee shall expire, no later than the Day of, 2.....², and any demand for payment under it must be received by us at the office indicated above on or before that date.
5. 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."

[Name of Authorized Official, signature(s) and seals/stamps].

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

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 of the Contract or a freely convertible currency acceptable to the Beneficiary.*

² *Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity 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.*

FORM No. 6 - PERFORMANCE SECURITY

[Option 2- Performance Bond]

[Note: Procuring Entities are advised to use Performance Security – Unconditional Demand Bank Guarantee instead of Performance Bond due to difficulties involved in calling Bond holder to action]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ *[insert name and Address of Procuring Entity]* **Date:**
_____ *[Insert date of issue].*

PERFORMANCE BOND No.: _____

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

1. By this Bond _____ as Principal (hereinafter called "the Contractor") and _____] as Surety (hereinafter called "the Surety"), are held and firmly bound unto _____] as Obligee (hereinafter called "the Procuring Entity") in the amount of _____ for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.
2. WHEREAS the Contractor has entered into a written Agreement with the Procuring Entity dated the _____ day of _____, 20, for _____ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.
3. NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Procuring Entity to be, in default under the Contract, the Procuring Entity having performed the Procuring Entity's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:
 - 1) complete the Contract in accordance with its terms and conditions; or
 - 2) obtain a tender or tenders from qualified tenderers for submission to the Procuring Entity for completing the Contract in accordance with its terms and conditions, and upon determination by the Procuring Entity and the Surety of the lowest responsive Tenderers, arrange for a Contract between such Tenderer, and Procuring Entity and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by Procuring Entity to Contractor under the Contract, less the amount properly paid by Procuring Entity to Contractor; or
 - 3) pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.
4. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.
5. Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named herein or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.

6. In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this day__of_____20_____.

SIGNED ON _____ on behalf of By ___ in the capacity of In the presence of

SIGNED ON _____ on behalf of By ___ in the capacity of In the presence of

FORM NO. 7 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[Insert name and Address of Procuring Entity]*

Date: _____ *[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: _____ *[Insert guarantee reference number]* **Guarantor:**

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

1. We have been informed that _____ (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (*in words*) is to be made against an advance payment guarantee.
3. At the request of the Contractor, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (*in words*)¹ 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 either that the Applicant:
 - a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
 - b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Contractor on its account number at _____.
5. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the ____ day of ____, 2², whichever is earlier. Consequently, demand for payment under this guarantee must be received by us at this office on or before that date.
6. 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.

[Name of Authorized Official, signature(s) and seals/stamps]

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

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency of the advance payment as specified in the Contract.

² Insert the expected expiration date of the Time for Completion. The Procuring Entity should note that in the event of an extension of the time for completion of the Contract, the Procuring Entity 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.

FORM NO. 8 - RETENTION MONEY SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[Insert name and Address of Procuring Entity]*

Date: _____ *[Insert date of issue]*

Advance payment guarantee no. *[Insert guarantee reference number]*

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

1. 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 Contractor") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Beneficiary, for the execution of _____ *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of *[insert the second half of the Retention Money]* is to be made against a Retention Money guarantee.
3. At the request of the Contractor, 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 _____])*¹ upon receipt by us of the Beneficiary's complying demands 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 Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number _____ at _____ *[insert name and address of Applicant's bank]*.
5. This guarantee shall expire no later than the Day of, 2.....², and any demand for payment under it must be received by us at the office indicated above on or before that date.
6. 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.

[Name of Authorized Official, signature(s) and seals/stamps]

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

¹The Guarantor shall insert an amount representing the amount of the second half of the Retention Money.

²Insert a date that is twenty-eight days after the expiry of retention period after the actual completion date of the contract. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity 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.

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM

INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful tenderer. In case of joint venture, the tenderer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the Tenderer by meeting one or more of the following conditions:

- *Directly or indirectly holding 25% or more of the shares.*
- *Directly or in directly holding 25% or more of the voting rights.*
- *Directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Tenderer.*

Tender Reference No.: _____ [insert identification no]

Name of the Assignment: _____ [insert name of the assignment] to:
 _____ [insert complete name of Procuring Entity]

In response to your notification of award dated _____ [insert date of notification of award] to furnish additional information on beneficial ownership: _____ [select one option as applicable and delete the options that are not applicable]

I) We here by provide the following beneficial ownership information.

Details of beneficial ownership

Identity of Beneficial Owner	Directly or indirectly holding 25% or more of the shares (Yes / No)	Directly or indirectly holding 25 % or more of the Voting Rights (Yes / No)	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer (Yes / No)
<i>[include full name (last, middle, first), nationality, country of residence]</i>			

OR

ii) We declare that there is no Beneficial Owner meeting one or more of the following conditions: directly or indirectly holding 25% or more of the shares. Directly or indirectly holding 25% or more of the voting rights. Directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Tenderer.

OR

We declare that we are unable to identify any Beneficial Owner meeting one or more of the following conditions. [If this option is selected, the Tenderer shall provide explanation on why it is unable to identify any Beneficial Owner]

Directly or indirectly holding 25% or more of the shares. Directly or indirectly holding 25% or more of the voting rights.

Directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Tenderer]"

Name of the Tenderer:[insert complete name of the Tenderer]_____*

*Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [insert complete name of person duly authorized to sign the Tender]*

Title of the person signing the Tender: [insert complete title of the person signing the Tender]

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]



SITE VISIT CLEARANCE CERTIFICATE
KENYA REINSURANCE CORPORATION LIMITED
PROPOSED FITOUT OF KENYA REINSURANCE CORPORATION UGANDA
TENDER NO. KRC/1670/2021/099

This is to certify that

M/s. _____ (name of firm)

have visited, inspected, and verified the scope of works at Kenya Re Office in Uganda.

Kenya Re Representative

NO.	STATION	NAME OF KENYA RE REPRESENTATIVE	SIGN	DATE OF VISIT
1.	Redstone House, First Floor, Bandali Rise Bugolobi, P.O. Box 34988 Kampala, Uganda			

Tenderers Representative

NO.	STATION	NAME OF TENDERER'S REPRESENTATIVE	SIGN	DATE OF VISIT
1.	Redstone House, First Floor, Bandali Rise Bugolobi, P.O. Box 34988 Kampala, Uganda			