KenGen

Energy for the nation.

KGN-ADM-010-2024

TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI.

(Citizen Contractors)

Kenya Electricity Generating Company PLC
Stima Plaza
Phase III, Kolobot Road, Parklands
P.O. BOX 47936-00100 NAIROBI.
Website: www.kengen.co.ke

JUNE 2024

CLIENT

KENGEN PLC
P.O. BOX 47936 - 00100
NAIROBI

PROJECT MANAGER

DAMA SERVICES LTD

P.O. BOX 9656 - 00100
NAIROBI

ARCHITECT

DAMA SERVICES LTD
P.O. BOX 9656 - 00100
NAIROBI

QUANTITY SURVEYORS

KOMOS ASSOCIATES LTD
P.O. BOX 69721 - 00400
NAIROBI

STRUCTURAL/CIVIL ENGINEERS

INTICOM LTD
P.O. BOX 14105 - 00100
NAIROBI

SERVICES ENGINEERS

NORKUN INTAKES LTD
P.O. BOX 605 - 00100
NAIROBI

TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI.

KGN – ADM – 010 - 2024

TENDER DOCUMENTS

Supplied as part of the Contract ……

Issued by: -

Kenya Electricity Generating Company
(KenGen)PLC
P.O. Box 47936 – 00100,
Nairobi.

The contract for the above-mentioned works entered this.....day of .20 ….... by the undersigned refers to these Bills of Quantities and the Ministry of Works General Specification dated March, 1976 (together with any amendments issued thereto) shall be read and construed as part of the said contract.

.....	.....
CONTRACTOR	EMPLOYER Kenya Electricity Generating
Date: ……	Date: ……...

SPECIAL NOTES

The Contractor is required to check the numbers of the pages of these Bills of Quantities, and should they find any missing or in duplicate or figures indistinct they must inform the General Manager, Supply Chain Department, Kenya Electricity Generating Company PLC, P.O. Box 47936 - 00100, Nairobi at once and have the same rectified.

Should the Contractor be in doubt about the precise meaning of any item or figure for any reason whatsoever, they must inform the Head of Procurement Department, Kenya Electricity Generating Company PLC, P.O. Box 47936 - 00100, Nairobi in order that the correct meaning may be decided before the date for submission of tenders.

No liability will be admitted nor claim allowed in respect of errors in the Contractor's Tender due to mistakes in the Specifications which should have been rectified in the manner described above.

PROCURING ENTITY: **KENYA ELECTRICITY GENERATING COMPANY PLC**

CONTRACT NAME AND DESCRIPTION: **TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI.**

KenGen PLC invites sealed tenders from eligible candidates for The **TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI.**

whose specifications are detailed in the Tender Document.

Tendering will be conducted under open competitive method to **CITIZEN CONTRACTORS** using a standardized tender document. Tendering is open to all qualified and interested Tenderers.

The tender is **CITIZEN CONTRACTORS.**

Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours between 8am and 5pm starting at the date of advert at the office of:

General Manager, Supply Chain Tel: (254) (020) 3666000
Email: tenders@kengen.co.ke; jmbugua@kengen.co.ke

Tender documents may be viewed and downloaded for free from the website (WWW.KENGEN.CO.KE). Tenderers who download the tender document must forward their particulars immediately to (tenders@kengen.co.ke , 0711036000 and P.O.BOX 47936-00100 postal address) to facilitate any further clarification or addendum.

Bidders who are unable to download the tender documents from the website may collect them from any KenGen Supply Chain Office upon payment of a non-refundable fee of **KShs.1, 000.00** paid via **Mpesa, pay bill no. 400200** and account no. **01120069076000**, then share the MPesa message to KenGen Finance office staff for receipt and issuance of official receipt or through a banker's cheque and payable to the address given below.

The Tenderer shall chronologically serialize all pages of the tender documents submitted.

There shall be a **MANDATORY SITE VISIT on 5th July 2024** at **starting at 10.00 a.m. at KenGen Pension Plaza II, 6TH Floor, Kolobot Road, Parklands, Nairobi.**

The Original Tender Security of **KES 1,000,000.00** or equivalent in a freely convertible currency, in form of:

- Tender Security from **a reputable bank** registered by the Central Bank of Kenya
- Guarantee issued by a **financial institution** approved and licensed by the Central Bank of Kenya.

- A guarantee by an **insurance company** registered and licensed by the Insurance Regulatory Authority listed by the Public Procurement Regulatory Authority.

Valid for 30 days beyond the tender validity period. All tender securities submitted shall be subject to authentication by KenGen and **MUST** be submitted in a plain sealed envelope and clearly marked **"KGN-ADM-010-2024 - TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI"** and addressed to:

General Manager, Supply Chain,
Kenya Electricity Generating Company PLC,
Ground Floor, KenGen Pension Plaza I,
Kolobot Road, Parklands,
P.O. Box 47936, 00100
NAIROBI.

***The Original Tender Security* clearly labeled should be dropped at the tender box located on Ground Floor at KenGen, RBS building.**

E-*Tender* securities are acceptable subject to:

i. Attachment of a scanned copy to the bid document.
ii. Submission of the e-security to the address indicated above:
   - Such E-Security can be verified by use of a Quick Response (QR) code
   - Such E-Security can be verified via the issuing institution's online portal

Completed Tender **must** be submitted **online** on or before: **22nd July 2024 at 10.00 a.m.**

Electronic submission shall be permitted ***through our e-procurement platform found at*** *www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal*. **Internet Explorer and Firefox Mozilla are the preferred web browsers.**

Tenders will be opened immediately after the deadline date and time specified above or any deadline date and time specified later.

Late tenders will be rejected.

The addresses referred to above are:

A. Address for obtaining further information and for purchasing tender documents

Physical address for hand Courier Delivery to an office or Tender Box (City, Street Name, Building, Floor Number and Room)

Kenya Electricity Generating Company PLC Stima Plaza
Phase III, Kolobot Road, Parklands
P.O. BOX 47936-00100
tenders@kengen.co.ke; cc jmbugua@kengen.co.ke

Address for Opening of Tenders.

General Manager, Supply Chain
Kenya Electricity Generating Company PLC
KenGen RBS Plaza II, Kolobot Road, Parklands
P.O. BOX 47936-00100
Ninth Floor, Nairobi.

KenGen adheres to high standards of integrity in its business operations. Report any unethical behavior immediately to any of the provided anonymous hotline service.

1) ***Call Toll Free: 0800722626;***
2) ***Free-Fax: 00800 007788;***
3) ***Email: kengen@tip-offs.com***
4) ***Website: www.tip-offs.com***

GENERAL MANAGER, SUPPLY CHAIN

PART1: TENDERING PROCEDURES

SECTION I - INSTRUCTIONS TO TENDERERS

GENERAL PROVISIONS

1.0 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.

1.2 Throughout this tendering document:

a) The term "in writing" means communicated in written form (e.g. by mail, e-mail, fax, including if specified in the TDS, distributed or received through the electronic-procurement system used by the Procuring Entity) with proof of receipt;

b) if the context so requires, "singular" means "plural" and vice versa;

c) "Day" means calendar day, unless otherwise specified as "Business Day". A Business Day is anyday that is an official working day of the Procuring Entity. It excludes official public holidays.

2.0 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 practiceand 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 Tenderers shall permit and shall cause their agents (whether declared or not), subcontractors, sub- consultants, service providers, suppliers, and their personnel, to permit the Procuring Entity to inspectall accounts, records and other documents relating to any initial selection process, pre-qualification process, tender submission, proposal submission, and contract performance (in the case of award), andto have them audited by auditors appointed by the Procuring Entity.

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. 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 in formation that would in that respect give such firm any unfair competitive advantage over competingfirms.

3.0 Eligible tenderers

3.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT3.8, or an individual or any combination of such entities in the form of a joint venture (JV) under an existing agree mentor with the intent to enter in to such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of theentire 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 JVduring the tendering process and, in the event the JV is awarded the Contract, during contract execution. Members of a joint venture may not also make an individual tender, be a subcontractor ina separate tender or be part of another joint venture for the purposes of the same Tender. The maximumnumber 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 eligibleto 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 shallbe 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;

b) Receives or has received any direct or indirect subsidy from another tenderer;

c) Has the same legal representative as another tenderer;

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;

e) Any of its affiliates participated as a consultant in the preparation of the design or technicalspecifications of the goods or works that are the subject of the tender;

f) Any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as aconsultant for Contract implementation;

g) Would be providing goods, works, or non-consulting services resulting from or directly relatedto consulting services for the preparation or implementation of the contract specified in this Tender Document;

h) Has a close business or personal relationship with senior management or professional staff ofthe Procuring Entity who has the ability to influence the bidding process and:

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) May be involved in the implementation or supervision of such Contract unless the conflicts 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 or fraudulent practice. A tenderer that is proven to have been involved in any of these practices shall be automatically disqualified

3.5 A Tenderer shall not participate in more than one Tender, except for permitted alternative tenders. Thisincludes 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 may participate as a subcontractor in more than one tender.

3.6 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT3.9. 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 determinationof the nationality of proposed sub-contractors or sub-consultants for any part of the Contract includingrelated Services.

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

3.8 A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded Contract(s) only if it is determined by the Procuring Entity to meet the following conditions, i.e. if it is:

i) A legal public entity of Government and/or public administration,

ii) financially autonomous and not receiving any significant subsidies or budget support from anypublic 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 Firms and individuals shall be ineligible if their countries of origin are:

(a) As a matter of law or official regulations, Kenya prohibits commercial relations with that country;

(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 ProcuringEntity, 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, local sub-contracts and labor) from citizen 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 ProcuringEntity determine if this condition is met shall be provided for this purpose in "SECTIONI II - EVALUATION AND QUALIFICATION CRITERIA, Item 9"..

3.11 Pursuant to the eligibility requirements of ITT 3.10, a tender is considered a foreign tenderer, If it is registered in Kenya and has less than 51 percent ownership by nationals of Kenya and if it does not subcontract to foreign firms or individuals 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 A Kenyan tenderer shall be eligible to tender if it provides evidence of having fulfilled his/her tax obligations by producing valid tax compliance certificate or tax exemption certificate issued by the Kenya Revenue Authority.

4.0 Eligible goods, equipment, and services

4.1 Goods, equipment and services to be supplied under the Contract may have their origin in any countrythat is not ineligible 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.

5.0 Tenderer's responsibilities

5.1 The tenderer shall bear all costs associated with the preparation and submission of his/her tender, andthe 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 and inspect the Site of the Works and its surroundings and obtain all information that may be necessary forpreparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall beat the tenderer's own expense.

5.3 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity toenter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity again stall 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 examination and 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

6.0 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 10.

PART 1: Tendering Procedures
Section I – Instructions to Tenderers
Section II – Tender Data Sheet (TDS)
Section III- Evaluation and Qualification Criteria
Section IV –Tendering Forms

PART 2: Works' Requirements
Section V - Specifications
Section VI - Bills of Quantities
Section VII - Drawings

PART 3: Conditions of Contract and Contract Forms
Section VIII - General Conditions (GCC)
Section IX - Special Conditions of Contract
Section X- Contract Forms

6.2 The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents. 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 a pre- arranged site visit and those of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 10. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.

6.3 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.

7.0 Clarification of Tender Document, Site Visit, Pre-tender Meeting

7.1 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 if provided for in accordance with ITT 7.2. 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 7.4, including a description of the inquiry but without identifying its source. If so 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 following the procedure under ITT 8 and ITT 22.2.

7.2 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the site(s) of the required contracts and obtain all information that may be necessary for preparing a tender. The costs of visiting the Site shall be at the Tenderer's own expense. The Procuring Entity shall specify in the **TDS** if a pre-arranged Site visit and or a pre-tender meeting will be held, when and where. The Tenderer's designated representative is invited to attend a pre-arranged site visit and a pre-tender meeting, as the case may be. The purpose of the site visit and the pre-tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.3 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.

7.4 Minutes of a pre-arranged site visit and those of the pre-tender meeting, if applicable, including the textof the questions asked by Tenderers and the responses given, together with any responses prepared afterthe meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents. Minutes shall not identify the source of the questions asked.

7.5 The Procuring Entity shall also promptly publish anonymized (*no names*) Minutes of the pre-arrangedsite visit and those of the pre-tender meeting at the web page identified in the **TDS**. Any modificationto the Tender Documents that may become necessary as a result of the pre-arranged site visit and thoseof the pre-tender meeting 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. Non-attendanceat the pre-arranged site visit and the pre-tender meeting will not be a cause for disqualification of a Tenderer.

8.0 Amendment of Tender Documents

8.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend theTender Documents by issuing addenda.

8.2 Any addendum issued shall be part of the Tender Documents and shall be communicated in writing toall who have obtained the Tender Documents from the Procuring Entity. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's website in accordance with ITT 7.5.

8.3 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the dead line for the submission of Tenders, pursuant toITT 22.2.

C. PREPARATION OF TENDERS

9. Cost of Tendering

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

10.0 Language of Tender

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 andprinted literature that are part of the Tender may be in another language provided they are accompaniedby an accurate and notarized translation of the relevant passages into the English Language, in whichcase, for purposes of interpretation of the Tender, such translation shall govern.

11.0 Documents Comprising the Tender

11.1 The Tender shall comprise the following:

a) Form of Tender prepared in accordance with ITT 12;
b) Schedules including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14;
c) Tender Security or Tender-Securing Declaration, in accordance with ITT 19.1;
d) Alternative Tender, if permissible, in accordance with ITT 13;
e) ***Authorization:*** written confirmation authorizing the signatory of the Tender to commit theTenderer, in accordancewithITT20.3;
f) *Qualifications:* documentary evidence in accordance with ITT 17 establishing the Tenderer'squalifications to perform the Contract if its Tender is accepted;
g) *Conformity:* a technical proposal in accordance with ITT 16;
h) Any other document required in the **TDS.**

12.0 Form of Tender and Schedules

12.1 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. The Tenderer shall chronologically serialize all pages of the tender documents submitted.

12.2 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.

13. Alternative Tenders

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

13.2 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.

13.3 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.

13.4 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.

14.0 Tender Prices and Discounts

14.1 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.

14.2 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.

14.3 The price to be quoted in the Form of Tender, in accordance with ITT 12.1, shall be the total price of the Tender, including any discounts offered.

14.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12.1.

14.5 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.

14.6 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 14.4, provided the Tenders for all lots (contracts) are opened at the same time.

14.7 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.

15.0 Currencies of Tender and Payment

15.1 The currency(ies) of the Tender and the currency(ies) of payments shall be the same.

15.2 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) A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya (referred to as "the foreign currency requirements") shall (if so allowed in the **TDS**) indicate in the Appendix to Tender the percentage(s) of the Tender Price (excluding Provisional Sums), needed by the Tenderer for the payment of such foreign currency requirements, limited to no more than two foreign currencies.

b) The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender and shall be based on the exchange rate provided by the Central Bank of Kenya on the date 30 days prior to the actual date of tender opening. Such exchange rate shall apply for all foreign payments under the Contract.

15.3 Tenderers may be required by the Procuring Entity to justify, to the Procuring Entity's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Adjustment Data in the Appendix to Tender are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Tenderers.

16.0 Documents Comprising the Technical Proposal

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.

17.0 Documents Establishing the Eligibility and Qualifications of the Tenderer

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

17.2 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.

17.3 If a margin of preference applies as specified in accordance with ITT 33.1, national tenderers applying for eligibility for national preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.

17.4 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 particular contractor or group of contractors qualifies for a margin of preference. Further the information will enable the Procuring Entity 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.

17.5 The purpose of the information described **in ITT 17.4** 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.

17.6 The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to owner ship and control which in formation on any changes to the information which was provided by the tenderer under ITT 6.4. 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.

17.7 All information provided by the tenderer pursuant to these requirements must be complete, current andaccurate 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.

17.8 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 tenderer pursuant to these requirements, then the tender will berejected.

17.9 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 anyconflict 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 bed is qualified from the procurementprocess,

ii) if the contract has been awarded to that tenderer, the contract award will be set aside pendingthe outcome of (iii),

iii) the tenderer will be referred to the relevant law enforcement authorities for investigation ofwhether the tenderer or any other person shave committed any criminal offence.

17.10 If a tenderer submits information pursuant to these requirements that is in complete, in accurate or out- of-date, or attempts to obstruct the verification process, then the consequences ITT 17.8 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 tender.

18.0 Period of Validity of Tenders

18.1. 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 22). At ender valid for a shorter period shall be rejected by the ProcuringEntity as non-responsive.

18. In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity mayrequest Tenderers to extend the period of validity of their Tenders. The request and the responses shall bemade in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended forthirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the requestwithout forfeiting its Tender security. A Tenderer granting the request shall not be required or permitted to modify its Tender.

19 Tender Security

19.1 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 amountand currency **specified** in the **TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.

19.2 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be a demand guaranteein any of the following forms at the Tenderer's option:

i) cash;

ii) a bank guarantee;

iii) a guarantee by an insurance company registered and licensed by the Insurance RegulatoryAuthority listed by the Authority;

iv) a guarantee issued by a financial institution approved and licensed by the Central Bank ofKenya, from a reputable source, and an eligible country.

19.3 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 validfor thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.

19.4 If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender notaccompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.

19.5 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderersshall 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 non-responsive or a bidder declines to extendtender validity period.

19.6 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.

19.7 The Tender Security may be forfeited or the Tender-Securing Declaration executed:

a) if a Tenderer withdraws its Tender during the period of Tender validity specified by theTenderer on the Form of Tender, or any extension there to be provided by the Tenderer; or

b) if the successful Tenderer fails to: -

i) sign the Contract in accordance with ITT47; or

ii) furnish a Performance Security and if required in the TDS, and any other documentsrequired in the TDS.

19.8 Where tender securing declaration is executed, the Procuring Entity shall recommend to the PPRA todebar the Tenderer from participating in public procurement as provided in the law.

19.9 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 futuremembers as named in the letter of intent referred to in ITT 4.1 and ITT 11.2.

19.10 A tenderer shall not issue a tender security to guarantee itself.

20.0 Format and Signing of Tender

20.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT11 and clearly mark it “ORIGINAL.”.

20.2 Tenderers shall mark as “CONFIDENTIAL” all information in their Tenders which is confidential totheir business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.

20.3 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signedby 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 bythe person signing the Tender.

20.4 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 so as to be legally binding on all the members as evidenced by a power of attorneysigned by their legally authorized representatives.

20.5 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

21.0 Sealing and Marking of Tenders

21.1 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 13, 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.

21.2 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 misplaced or opened prematurely will not be accepted.

22.0 Deadline for Submission of Tenders

22.1 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**.

22.2 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.

23.0 Late Tenders

The Procuring Entity shall not consider any Tender that arrives after the deadline for submission of tenders, in accordance with ITT 22. 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.

24.0 Withdrawal, Substitution, and Modification of Tenders

24.1 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 20.3, (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 20 and ITT 21 (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, inaccordance with ITT 22.

24.2 Tenders requested to be withdrawn in accordance with ITT 24.1 shall be returned unopened to the Tenderers.

24.3 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 onthe Form of Tender or any extension thereof.

25. Tender Opening

25.1 Except in the cases specified in ITT 23 and ITT 24.2, the Procuring Entity shall publicly open and readout 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 22.1, shall be as specified in the **TDS.**

25.2 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.

25.3 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 returnedto 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.

25.4 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 authorizationtorequestthemodificationandisreadoutatTenderopening.

25.5 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 considerappropriate.

25.6 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shallbe considered further for evaluation. The Form of Tender and pages of the Bill of Quantities (to be decided on by the tender opening committee) are to be initialed by the members of the tender openingcommittee attending the opening.

25.7 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 23.1).

25.8 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, if new as required;
e) number of pages of each tender document submitted.

25.9 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. Acopy of the tender opening register shall be distributed to all Tenderers.

E. EVALUATION AND COMPARISON OF TENDERS

26. Confidentiality

26.1 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 ITT43.

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

26.3 Notwithstanding ITT 26.2, from the time of tender opening to the time of contract award, if a tendererwishes to contact the Procuring Entity on any matter related to the tendering process, it shall do so inwriting.

27.0 Clarification of Tenders

27.1 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 thetenders, in accordance with ITT 31.

27.2 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.

28.0 Deviations, Reservations, and Omissions

28.1 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 ofthe requirements specified in the tender document; and
c) *"Omission"* is the failure to submit part or all of the information or documentation required inthe Tender document.

29.0 Determination of Responsiveness

29.1 The Procuring Entity's determination of a Tender's responsiveness is to be based on the contents of thetender itself, as defined in ITT 11.

29.2 A substantially responsive Tender is one that meets the requirements of the Tender document withoutmaterial 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;
b) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rightsor the tenderer's obligations under the proposed contract;
c) if rectified, would unfairly affect the competitive position of other

tenderers presentingsubstantially responsive tenders.

29.3 The Procuring Entity shall examine the technical aspects of the tender submitted in accordance with ITT 16, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation or omission.

29.4 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.

30.0 Non-material Non-conformities

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

30.2 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 of time, to rectify non-material 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 priceof the tender. Failure of the tenderer to comply with the request may result in the rejection of its tender.

30.3 Provided that a tender is substantially responsive, the Procuring Entity shall rectify quantifiable non- material 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.**

31.0 Arithmetical Errors

31.1 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.

31.2 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, sub-totaland total bid price shall be considered as a major deviation that affects the substance of the tenderand 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

31.3 Tenderers shall be notified of any error detected in their bid during the notification of award.

32.0 Conversion to Single Currency

For evaluation and comparison purposes, the currency(ies) of the Tender shall be converted in to asingle currency as specified in the **TDS**.

33.0 Margin of Preference and Reservations

33.1 A margin of preference may be allowed only when the contract is open to international competitive tendering where foreign contractors are expected to participate in the tendering process and where the contract exceeds the value/threshold specified in the Regulations.

33.2 A margin of preference shall not be allowed unless it is specified so in the **TDS**.

33.3 Contracts procured on basis of international competitive tendering shall not be

subject to reservations exclusive to specific groups as provided in ITT 33.4.

33.4 Where it is intended to reserve a contract to a specific group of businesses (these groups are Small and Medium Enterprises, Women Enterprises, Youth Enterprises and Enterprises of persons living with disability, as the case may be), and 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 or firms belonging to the specified group are eligible to tender. No tender shall be reserved to more than one group. If not so stated in the Invitation to Tender and in the Tender documents, the invitation to tender will be open to all interested tenderers.

34.0 Nominated Subcontractors

34.1 Unless otherwise stated in the **TDS,** the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected/nominated by the Procuring Entity. In case the Procuring Entity nominates a subcontractor, the subcontract agreement shall be signed by the Subcontractor and the Procuring Entity. The main contract shall specify the working arrangements between the main contractor and the nominated subcontractor.

34.2 Tenderers may propose sub-contracting 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.

34.3 Domestic 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 so by the Procuring Entity in the **TDS** a scan 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.

35. Evaluation of Tenders

35.1 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 Lowest Evaluated Tender in accordance with ITT 40.

35.2 To evaluate a Tender, the Procuring Entity shall consider the following:

a) price adjustment in accordance with ITT 31.1 (iii); excluding provisional sums and contingencies, if any, but including Daywork items, where priced competitively;

b) price adjustment due to discounts offered in accordance with ITT 14.4;

c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 32;

d) price adjustment due to quantifiable non-material non-conformities in accordance with ITT 30.3; and

e) any additional evaluation factors specified in the **TDS** and Section III, Evaluation and Qualification Criteria.

35.3 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.

35.4 Where the tender involves multiple lots or contracts, the tenderer will be allowed to tender for one or more lots (contracts). Each lot or contract will be evaluated in accordance with ITT 35.2. The methodology to determine the lowest evaluated tenderer or tenderers base done lot (contract) or based on a combination of lots (contracts), will be specified in Section III, Evaluation and Qualification Criteria. In the case of multiple lots or contracts, tenderer will be will be required to prepare

the Eligibility and Qualification Criteria Form for each Lot.

36.0 Comparison of tenders

The Procuring Entity shall compare the evaluated costs of all substantially responsive Tendersestablished in accordance with ITT 35.2 to determine the Tender that has the lowest evaluated cost.

37.0 Abnormally low tenders and abnormally

high tendersAbnormally Low Tenders

37.1 An Abnormally Low Tender is one where the Tender price, in combination with other elements of theTender, appears so low that it raises material concerns as to the capability of the Tenderer in regards tothe Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.

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

37.3 After evaluation of the price analyses, in the event that 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.

Abnormally high tenders

37.4 An abnormally high tender 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.

37.5 In case of a nab normally high 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 thespecifications, 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 ProcuringEntity 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.

37.6 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.

38.0 Unbalanced and/ or front-loaded tenders

38.1 If in the Procuring Entity's opinion, the Tender that is evaluated as the lowest evaluated price is seriously unbalanced and/or frontloaded, 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.

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

a) accept the Tender;

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;

c) agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works;

d) reject the Tender,

39.0 Qualifications of the tenderer

39.1 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.

39.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 17. 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 Sub-contractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.

39.3 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.

40.0 Lowest evaluated tender

Having compared the evaluated prices of Tenders, the Procuring Entity shall determine the Lowest Evaluated Tender. The Lowest 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.

41.0 Procuring entity's right to accept any tender, and to reject any or all tenders.

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 there by incurring any liability to Tenderers. In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. AWARD OF CONTRACT

42.0 Award criteria

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

430 Notice of Intention to Enter into a Contract/Notification of Award

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 thereason;
d) the expiry date of the Standstill Period; and
e) instruction son how to request a debriefing and/ or submit a complaint during the stand still period;

44.0 Stand still Period

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

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

45.0 Debriefing by the Procuring Entity

45.1 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 43, 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.

45.2 Debriefings of unsuccessful Tenderers may be done in writing or verbally. The Tenderer shall bearits own costs of attending such a debriefing meeting.

46.0 Letter of Award

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 with in the Standstill Period, the Procuring Entity shall transmit the Letter of Award to the successful Tenderer. The letter of award shall requestthe successful tenderer to furnish the Performance Security within 21 days of the date of the letter.

47.0 Signing of Contract

47.1 Upon the expiry of the fourteen days of the Notification of Intention to enter in to contract and upon the parties meeting their respective statutory requirements, the Procuring Entity shall send the successful Tenderer the Contract Agreement.

47.2 Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign,date, and return it to the Procuring Entity.

47.3 The written contract shall be entered into within the period specified in the notification of award andbefore expiry of the tender validity period.

48.0 Performance Security

48.1 Within twenty-one (21) days of the receipt of the Letter of Award 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 38.2 (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.

48.2 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.

48.3 Performance security shall not be required for contracts estimated to cost less than the amountspecified in the Regulations.

49.0 Publication of Procurement Contract

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 theselection 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 readout at Tender opening.

50.0 Procurement related Complaints and Administrative Review

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

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

SECTION II - TENDER DATA SHEETS (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.

Reference toITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
A. General	
ITT 1.1	The name of the contract is **TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI.** The reference number of the Contract is TENDER NO. KGN – ADM – 010 - 2024 The number and identification of lots (contracts) comprising this Tender are: **N/A**
ITT 2.4	The Information made available on competing firms is as follows: **NONE**
ITT 2.4	The firms that provided consulting services for the contract being tendered for are: **M/S DAMA SERVICES LTD of P.O. BOX 9656-00100 NAIROBI**
ITT 3.1	Joint Ventures are **NOT APPLICABLE**
ITT 3.10	Foreign tenderers are **NOT APPLICABLE**
B. Contents of Tender Document	
ITT 7.1	**(i)** The Tenderer will submit any request for clarifications in writing at the Email: tenders@kengen.co.ke; jmbugua@kengen.co.ke to reach the Procuring Entity not later than **Seven (7) DAYS PRIORTO THE DEADLINE OF SUBMISSION OF BIDS** (ii) The Procuring Entity shall publish its response at the website www.kengen.co.ke
ITT 7.2	(A)A pre-arranged pretender SITE VISIT and meeting shall take place at the following date, timeand place: Date: **5th July 2024** Time: **10.00 AM** Place: **KenGen Pension Plaza II, 6TH Floor, Kolobot Road, Parklands, Nairobi**
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than **Seven Days** before the meeting.
ITT 7.5	The Procuring Entity's website where Minutes of the pre-Tender meeting and the pre-arrangedpretender will be published is www.kengen.co.ke
ITT 9.1	For Clarification of Tender purposes, for obtaining further information and for obtaining tenderdocuments, the Procuring Entity's address is: **General Manager, Supply Chain** **Kenya Electricity Generating Company PLC** **KenGen RBS Plaza II, Kolobot Road, Parklands** **P.O. BOX 47936-00100,Ninth Floor, Nairobi.**

C. Preparation of Tenders	
ITT 11.1 (h)	The Tenderer shall submit the following additional documents in its Tender: ***NONE***
ITT 13.1	Alternative Tenders **SHALL NOT BE** considered.
ITT 13.2	Alternative times for completion **SHALL NOT BE** permitted.
ITT 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: ***NONE***
ITT 14.5	The prices quoted by the Tenderer shall be: **FIXED**
ITT 15.2 (a)	Foreign currency requirements **NOT ALLOWED.**
ITT 18.1	The Tender validity period shall be **126 days.**
ITT 18.3	**(a)** The Number of days beyond the expiry of the initial tender validity period will be **30 days.** (b) The Tender price shall be adjusted by the following percentages of the tender price: *(i)* By **0%** of t*he local currency portion of the Contract price adjusted to reflect local inflationduring the period of extension, and* *(ii)By **0%** the foreign currency portion of the Contract price adjusted to reflect the internationalinflation during the period of extension.*
ITT 19.1	Tender shall provide **a TENDER SECURITY** The Original Tender Security of **KES 1,000,000.00** or equivalent in a freely convertible currency, in form of: ➢ Tender Security from **a reputable bank** registered by the Central Bank of Kenya ➢ Guarantee issued by a **financial institution** approved and licensed by the Central Bank of Kenya. ➢ A guarantee by an **insurance company** registered and licensed by the Insurance Regulatory Authority listed by the Public Procurement Regulatory Authority. Valid for 30 days beyond the tender validity period. All tender securities submitted shall be subject to authentication by KenGen and **MUST** be submitted in a plain sealed envelope and clearly marked **"KGN-ADM-010-2024 - TENDER FOR PROPOSED OFFICE FIT OUT WORKS AT KENGEN R.B.S. PENSION PLAZA II, SIXTH (6TH) FLOOR PARKING SILO, (UPPER AND LOWER LEVELS), KOLOBOT ROAD, NAIROBI"** and addressed to: **General Manager, Supply Chain,** **Kenya Electricity Generating Company PLC,** **Ground Floor, KenGen Pension Plaza I,** **Kolobot Road, Parklands,** **P.O. Box 47936, 00100** **NAIROBI.** ***The Original Tender Security* clearly labeled should be dropped at the tender box located on Ground Floor at KenGen, RBS building.** **E-*Tender* securities are acceptable subject to:** i. Attachment of a scanned copy to the bid document. ii. Submission of the e-security to the address indicated above:

	➢ Such E-Security can be verified by use of a Quick Response (QR) code ➢ Such E-Security can be verified via the issuing institution's online portal.
ITT 20.1	In addition to the original of the Tender, the number of copies is: **N/A**
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: ***A duly dated and stamped Power of Attorney signed by legally authorized representative of the tenderer***
D. Submission and Opening of Tenders	
	Tender submission **The tender MUST be submitted through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal** **SUBMISSION OF TENDERS:** **Electronic -Procurement System** 1.For suppliers registering for the first time using the link https://supplierregistration.kengen.co.ke:4302/slc_selfreg(bD1lbiZjPTMwMCZkPW1pbg==)/bspwdapplication.do#VIEW_ANCHOR-ROS_TOP ensure  **eckbox is ticked** so that the login details are sent lly It is a mandatory requirement that all documents are uploaded to the SRM System through the link: https://eprocurement.kengen.co.ke:50001/irj/portal , log- in to access the published events under **'RFx and Auctions'** tab. After clicking on the Event Number, then click on Register (for Open tenders), then click on 'Create Response', bidders to click on **'Technical RFx Response'** tab to access the cfolder page to upload your document. **Instructions to Bidders: Caution on Uploading Bid Documents** e. **Preferred Submission Method**: Bidders are advised to use the C-Folder for submitting their tenders. This platform is specifically designed to handle bulky technical bid documents of up to 99MB per file. f. **Exceeding File Size Limit:** In the event that the bid response exceeds the 99MB limit: - iii. Bidders should try to compress the pdf file first to file size less than 99MB and if compressing doesn't reduce the file size consider option **(ii) below.** iv. Split the documents into two or more separate files before submission. This ensures the integrity of the tendering process and

accurate evaluation of all necessary information.

g. Bids uploaded on **Notes and Attachments" Tab** may have a transmission failure and the bid may not be successfully received through the system and KenGen will not be held accountable for failure to transmit on eProcurement portal.

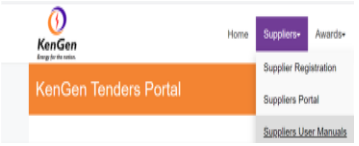
h. **Assistance and Inquiries:** For any questions or further assistance, bidders are encouraged to reach out to the team at least 24 hours before submission deadline through eprocurement@kengen.co.ke; or tenders@kengen.co.ke; or visit our offices through the Karibu Centre.

Prices **MUST** be entered under item tab of the RFx and **MUST** be similar to

- Bidders should confirm on the supplier portal that the status of their RFx response shows "Submitted" and not "Saved" to ensure their RFx response is submitted.

- Bidders should confirm on the supplier portal that the status of their RFx response shows "Submitted" and not "Saved" to ensure their RFx response is submitted.

- Bidders who have submitted their bids should not click on **WITHDRAW** but click on **EDIT** to amend their bid response with appropriate changes if they desire to do so.
  Manuals to guide on the bidding process are accessible via the KenGen Tenders Portal.



Tender closing date: 22nd July 2024 at 10.00 p.m.

Tender opening date: 22nd July 2024 at 10.30 p.m.

ITT 22.1	(A) For Tender submission purposes only, the Procuring Entity's address is: **The tender MUST be submitted through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal as per instructions in this TDS under ITT 1.2 (a) above**

ITT 25.1	The Tender opening shall take place at the time and the address for Opening of Tenders providedbelow: The Tender opening shall take place at: Kenya Electricity Generating Company PLC, 9th Floor, KenGen Pension Plaza II, Kolobot Road, Parklands, P.O. Box 47936, 00100 NAIROBI. Date and time: 22nd July 2024 at 10.30 a.m. Note; In an effort to curb the spread of the COVID-19 pandemic the following measures shall apply: 1) Where bidders or their representatives choose to attend the bid opening, KenGen shall limit the persons to a maximum of 5 people, whom shall be nominated by the bidders present for the opening session 2) The tender opening shall be conducted in a spacious environment and observing a social distance of at least 1.5 meters away from each other. Screening and registration of all attendees shall take place in all sessions. 3) Failure to attend the bid opening shall not invalidate the process. **4)** Bidders can request for the tender opening minutes of the tender opening session through the following email address: tenders@kengen.co.ke
E. Evaluation, and Comparison of Tenders	
ITT 30.3	The adjustment shall be based on the **N/A** 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.
TT 32.1	The currency that shall be used for Tender evaluation and comparison purposes only to convert atthe selling exchange rate all Tender prices expressed in various currencies into a single currency is: **Kenya Shillings (Kshs)** The source of exchange rate shall be: **The Central bank of Kenya** (mean rate) The date for the exchange rate shall be: **the deadline date for Submission of the Tenders.** *For comparison of Tenders, the Tender Price, corrected pursuant to ITT 31, shall first be brokendown into the respective amounts payable in various currencies by using the selling exchange rates specified by the Tenderer in accordance with ITT 15.1.* *In the second step, the Procuring Entity will convert the amounts in various currencies in whichthe Tender Price is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and, on the date, stipulated above.*
ITT 33.2	A margin of preference **SHALL NOT** apply.
ITT 33.4	The invitation to tender is extended to the following group that qualify for Reservations **CITIZEN CONTRACTORS**
ITT 34.1	At this time, the Procuring Entity **DOES NOT INTEND** to execute certain specific parts of the Worksby subcontractors selected in advance.

ITT 34.2	Contractors may propose subcontracting: Maximum percentage of subcontracting permitted is: 10%of the total contract amount. Tenderers planning to subcontract more than 10% 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.
ITT 34.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose SpecializedSubcontractors are designated as follows: 1. **ELECTRICAL WORKS with attached specifications** 2. **ICT & SECURITY WORKS with attached specifications** 3. **LIFT INSTALLATIONS WORKS with attached specifications** 4. **AIR CONDITIONING WORKS with attached specifications** 5. **PLUMBING DRAINAGE AND FIRE FIGHTING WORKS with attached specifications** For the above-designated parts of the Works that may require Specialized Subcontractors, the relevantqualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation.
ITT 35.2 (e)	Additional requirements apply. These are detailed in the evaluation criteria in Section III,Evaluation and Qualification Criteria.
ITT 48.1	Other documents required in addition to the Performance Security are: 1. PROGRAM OF WORKS 2. INSURANCE (WIBA and CAR) 3. Project should be registered by Directorate of Occupational Safety and Health Services (DOSHS) as a workplace registration for a building works operation.
ITT 50.1	The procedures for making a Procurement-related Complaint are detailed in the "Notice ofIntention to Award the Contract" herein and are also 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: Procuring Entity: **KENYA ELECTRICITY GENERATING COMPANY (KENGEN) PLC** For the attention of: General Manager, Supply Chain Tel: (254) (020) 3666000 Email: tenders@kengen.co.ke In summary, a Procurement-related Complaint may challenge any of the following (amongothers): (i) the terms of the Tender Documents; and (ii) the Procuring Entity's decision to award the contract.

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

1.0 GENERAL PROVISIONS

1.1 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 shall use **the Standard Tender Evaluation Document for Goods and Works** for evaluating Tenders.

1.2 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 amounts 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.

(a) 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.

1.3 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.

2.0 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 mandatory requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements provided for in the preliminary evaluation criteria outlined below. 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 non- responsive and will not be considered further.

After tender opening, the tenders will be evaluated in 5 stages, namely:

1) Mandatory Evaluation.
2) Detailed Technical Examination.
3) Financial Evaluation.
4) Recommendation for award
5) Post qualification: Due diligence.

STAGE 1-MANDATORY EVALUATION CRITERIA

This stage of evaluation shall involve examination of the pre-qualification conditions as set out in the Tender, Advertisement Notice or Letter of Invitation to Tender and any other conditions stated in the bid document.

This stage comprises **MANDATORY EVALUATION** of the following:

Section 1 - MAIN CONTRACTOR
Section 2 – ELECTRICAL CONTRACTOR
Section 3 – ICT AND SECURITY WORKS CONTRACTOR
Section 4 – LIFT INSTALLATION CONTRACTOR
Section 5 – MECHANICAL CONTRACTOR (AIR CONDITIONING WORKS)
Section 6 - PLUMBING DRAINAGE AND FIRE FIGHTING WORKS

Section 1 – MAIN CONTRACTOR

NO	REQUIREMENTS	YES/ NO
MR 1	Copy of Registration Certificate /Certificate of Incorporation	
MR 2	Valid Copy of Business Permit from County Government - **must be for a construction related entity/business.**	
MR 3	Valid Tax Compliance Certificate - issued by Kenya Revenue Authority valid at least up to date of tender opening.	
MR 4	Copy of a valid CR 12 - issued within 6 months prior to tender closure date or copy of National Identity (I.D.) Card for Sole Proprietors.	
MR 5	Tender validity duration 126 days from the date of tender opening	
MR 6	Tender Security of KSHS. 1,000,000/= valid for 30 days beyond the tender validity period in the form specified in the TDS.	
MR 7	Confidential Business Questionnaire **duly filled, signed & stamped**	
MR 8	Tender Form **duly filled, signed and stamped**	
MR 9	Price Schedule **duly filled and signed and stamped**	
MR 10	Certificate of Independent Tender Determination**, duly filled, signed and stamped.**	
MR 11	Dully filled signed and stamped Self Declaration form that the tenderer is not debarred in the matter of PPADA 2015.	
MR 12	Dully filled signed and stamped Self Declaration form that the tenderer will not engage in any corrupt or Fraudulent Practice.	
MR 13.	Declaration and Commitment to The Code of Ethics in the format provided. Must be duly filled, signed and stamped (MUST BE SIGNED AND STAMPED BY COMMISSIONER OF OATHS).	
MR 14.	The Tender MUST be submitted be in the required format and serialized on each page of the bid submitted, Sec.74.1.i. of the PPADA, 2015.	
MR 15.	Power of Attorney Form, duly filled and signed indicating that the tender has been dully signed by the person lawfully authorized to do so.	
MR 16.	Tender documents Must be submitted through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal)	
MR 17.	Audited Accounts of the last three (3) financial years i.e. 19/20, 20/21, 22/23) duly prepared and signed by a licensed external auditor/s with a practice number and the Directors/ proprietors of the Company/ entity.	
MR 18.	Provide a **Letter of Availability of a Credit line** of at least KShs.60 million (KShs. 60,000,000.00) **for this tender** from a financial institution registered by Central Bank of Kenya. The documents so provided shall be verified for authenticity.	
MR 19.	Copy of National Construction Authority (NCA) Registration Certificate of category 6 and above in Building Works	
MR 20.	Copy of Current Annual Practicing License from the NCA of at least	

NO	REQUIREMENTS	YES/ NO
	category 6 and above in Building Works.	
MR 21.	Copy of a valid Certificate of Workplace Registration under Occupational Safety and Health Act, 2007 (OSHA) – **MUST BE IN THE NAME OF THE PROPRIETOR/ENTITY APPLYING FOR THE TENDER**	
MR 22.	Commitment by signing and stamping FORMFIN-3.6 to wear required safety PPEs as per the tasks to be performed.	
MR 23.	The Main Contractor shall attach dully filled signed and stamped pre-contract agreement to work together with the Domestic Sub-Contractors as a consortium (NOT Joint Venture) if awarded the Tender (where Applicable). The agreement between the Main contractor and the following sub-contractors shall refer to this tender and be dated within the tender advertisement and tender closure dates.: a) Electrical Installation works subcontractor b) ICT networking/structured cabling works and Security works (Access control and CCTV) Subcontractors. c) Lift Installation Contractor. d) Air conditioning installation works subcontractor. e) Plumbing and Drainage & Firefighting system installation works Subcontractor. The agreement shall state that if the main contractor is awarded the contract, they shall work with the sub-contracted firms as their domestic subcontractors. The agreement must be witnessed by a Commissioner for Oaths. NB: An agreement between the Main Contractor and the subcontractors shall not be necessary if the Main Contractor is registered by NCA and/or EPRA for any of the specialist work/s. However, in such instances, the Main Contractor shall attach all the relevant NCA and/or EPRA registration certificates and valid annual license/s for specialist works. ***(THE AGREEMENT MUST BE DULY <u>SIGNED AND STAMPED</u> BY ALL PARTIES FOR IT TO BE VALID)***	
MR 24.	SITE VISIT CERTIFICATE to be attached as evidence of attending the MANDATORY Site Visit. ***An attendance register and certificates shall be signed on the material date.*** ***Tenderers who fail to attend the mandatory Site shall be considered non- responsive.***	
MR 25.	Addendum(s)/Clarification(s) issued must be attached, duly filled and stamped (where applicable)	
MR 26.	Duly Completed Qualification Form, with all relevant documents attached	

MANDATORY REQUIREMENTS FOR DOMECTIC SUB-CONTRACTORS

The Main Contractor MUST team up with domestic Sub-Contractors registered by National Construction Authority (NCA) and MUST meet/provide the requirements below for every service works where applicable:

Section 2 – ELECTRICAL CONTRACTOR

NO	REQUIREMENTS	YES/ NO
MR 1	Copy of Registration Certificate /Certificate of Incorporation	
MR 2	Valid Copy of Business Permit from County Government.	
MR 3	Valid Tax Compliance Certificate - issued by Kenya Revenue Authority valid at least up to date of tender opening.	
MR 4	Copy of National Construction Authority (NCA) Registration Certificate of category 6 and above in Electrical Installation Works	
MR 5	Copy of Current Annual Practicing License from the NCA of category 6 and above in Electrical Installation Works.	
MR 6	Copy of valid class B or A-1 licenses with Energy and Petroleum Regulatory Authority (EPRA) for a worker or the company.	
MR 7	Completed contracts in the last five (5) years (a maximum of 3No. Projects) attach reference letters on client letter head accompanied by copy of contracts/LPO and completion certificates.	

Section 3 – ICT AND SECURITY WORKS CONTRACTOR (STRUCTURED CABLING, CCTV AND CONTROLCONTRACTOR

NO	REQUIREMENTS	YES/ NO
MR 1	Copy of Registration Certificate /Certificate of Incorporation	
MR 2	Valid Copy of Business Permit from County Government.	
MR 3	Valid Tax Compliance Certificate - issued by Kenya Revenue Authority valid at least up to date of tender opening.	
MR 4	Copy of Current Class of licenses with the Communication Authority of Kenya (CAK).	
MR 5	Manufacturer's Authorization Letter for the CCTV cameras, NVRs, POE switches, cabinets, cables and Access Control equipment being offered by the bidder.	
MR 6	Completed contracts in the last five (5) years (a maximum of 3No. Projects) attach reference letters on client letter head accompanied by copy of contracts/LPO and completion certificates.	

Section 4 – LIFT INSTALLATION CONTRACTOR

NO	REQUIREMENTS	YES/ NO
MR 1	Copy of Registration Certificate /Certificate of Incorporation	
MR 2	Valid Copy of Business Permit from County Government.	
MR 3	Valid Tax Compliance Certificate - issued by Kenya Revenue Authority valid at least up to date of tender opening.	
MR 4	Copy of National Construction Authority (NCA) Registration Certificate of Category 6 and above for Electrical Engineering Services Contractor / Mechanical Engineering, lift hoist, Escalators, Mechanical ramps, Travellators, Conveyors and Belt Installation.	

MR 5	Copy of Current Annual Practicing License from the NCA of category 6 and above as Electrical Engineering Services Contractor/ Mechanical Engineering, having done works on lift hoist, Escalators, Mechanical ramps, Travellators, Conveyors and Belt Installation.	
MR 6	Completed contracts in the last five (5) years (a maximum of 3No. Projects) attach reference letters on client letter head accompanied by copy of contracts/LSO and completion certificates.	

Section 5 – MECHANICAL CONTRACTOR (AIR CONDITIONING WORKS)

NO	REQUIREMENTS	YES/ NO
MR 1	Copy of Registration Certificate /Certificate of Incorporation	
MR 2	Valid Copy of Business Permit from County Government.	
MR 3	Valid Tax Compliance Certificate - issued by Kenya Revenue Authority valid at least up to date of tender opening.	
MR 4	Copy of National Construction Authority (NCA) Registration Certificate of at least category 6 and above in Mechanical Engineering Contractor with Air Conditioning and Ventilation	
MR 5	Copy of Current Annual Practicing License from the NCA of category 6 and above in Mechanical Engineering Contractor with Air Conditioning and Ventilation.	
MR 6	Completed contracts in the last five (5) years (a maximum of 3No. Projects) attach reference letters on client letter head accompanied by copy of contracts/LPO and completion certificates.	

Section 6 – MECHANICAL CONTRACTOR (PLUMBING AND DRINAGE WORKS & FIRE FIGHTING EQUIPMENT INSTALLATION WORKS)

NO	REQUIREMENTS	YES/ NO
MR 1	Copy of Registration Certificate /Certificate of Incorporation	
MR 2	Valid Copy of Business Permit from County Government.	
MR 3	Valid Tax Compliance Certificate - issued by Kenya Revenue Authority valid at least up to date of tender opening.	
MR 4	Copy of National Construction Authority (NCA) Registration Certificate of category 6 and above in Mechanical Engineering Contractor carrying out Plumbing and Drainage Sanitary Fittings and Fire Engineering Services	
MR 5	Copy of Current Annual Practicing License from the NCA of category 6 and above in Mechanical Engineering Contractor with • Plumbing and Drainage Sanitary Fittings • Fire Engineering Services	
MR 6	Completed contracts in the last five (5) years (a maximum of 3No. Projects) attach reference letters on client letter head accompanied by copy of contracts/LSO and completion certificates.	

NOTE: Tenderers are required to PASS ALL the Mandatory Requirements to proceed to Technical Evaluation stage i.e., only bidders who PASS the Mandatory Evaluation stage shall proceed to the Technical Evaluation stage.

STAGE 2: TECHNICAL EVALUATION CRITERIA

Technical evaluation shall be carried out only if the tender is determined to be responsive to the

preliminary/ mandatory examination.
Evaluation of the Main Contractor and Domestic Sub- Contractors

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

The following qualification requirement shall apply:

The award of points for the STANDARD FORMS considered in this section shall be as shown below:

NO.	PARAMETER	MAXIMUM POINTS
1	Key Personnel	20
2	Contracts completed in the last Five (5) Years	20
3	Schedules of On-going Projects	5
4	Schedules of Contractor's Equipment	20
5	Audited Financial Accounts for the last three (3) years	15
6	Evidence of Financial Resources	15
7	Name, address and Telephone contacts of Banks (Contractor to Provide)	2
8	Litigation History	3
	TOTAL	100

NOTES:

a) The Main Contractor MUST ensure that subcontractors provide requirements for Domestic Subcontracting in the Key Personnel, Completed and Ongoing Projects to incorporate in Technical Evaluation.

b) The assessment for Eligibility (Main Contractor and Domestic Sub- Contractors) shall be scored as detailed in the scoring plan indicated below.

- The PASS MARK is set at 70marks to progress to Financial Evaluation Stage.

ITEM	DESCRIPTION	POINT SCORED	MAX. POINT	
1	Key Personnel (Attach evidence)			
	Director of the firm **(Building, Civil, Electrical, Mechanical Engineering or a Construction Related Field)** • Holder of degree ---------- 5 • Holder of diploma ---------- 3 • Holder of certificate---------- 1.5 • Holder of trade test certificate ----------0.75 • No relevant certificate ----------0 *Copies of certificates to be provided as evidence*		**5**	
	At least 3No. degree/diploma holder of key personnel in **Building, Civil,Electrical and Mechanical Engineering Construction Related Field) Distribution;** **- Main and Sub-Contractors'.** • With over 10 years relevant experience ------ 6 • With over 5 years relevant experience ------- 3 • With under 5 years relevant experience---- 1.5 • No relevant certificate----------0 ***Note:*** • ***The three staff fronted for involvement in the project can be for the main and/or subcontractors.*** • ***Copies of certificates to be provided as evidence***		**6**	**20**
	At least 3No certificate holder of key personnel in **Building, Civil, Electrical and Mechanical Engineering Construction Related Field) Distribution;** **Main and Sub-Contractors'.** • With over 10 years relevant experience ------- 6 • With over 5 years relevant experience --------3 • With under 5 years relevant experience---- 1.5 • No relevant certificate----------0 ***Note: The three staff fronted for involvement in the project can be for the main and/or subcontractors.*** • ***Copies of certificates to be provided as evidence***		**6**	
	At least 3No artisan (trade test certificate in relevant Engineering Field) – (**Building, Civil, Electrical and Mechanical EngineeringConstruction Related Field)** **- Main and Subcontractors'.** • Artisan with over 10 years relevant experience 3 • Artisan with under 10 years relevant experience1.5 • Non-skilled worker with over 10 years relevant experience 0.75 • No relevant certificate----------0 ***Note: The three staff fronted for involvement in the project can be for the main and/or subcontractors.*** • ***Copies of certificates to be provided as evidence***		**3**	
2	Contract completed in the last five (5) years (Max of 5No. Projects, 5 from Main Contractor and 1 No. each from each of the 5 Sub-Contract Works) **Provide Evidence (Attach Award letter, LPO, Contract Agreement and Completion Certificate** **Main Contractor** • 100 Million and above project ---------- 2 • 50-99 Million project ..... 1.5 • 25-49 Million and below project ---------- 1 • 24 and below Million and below project ---------- 0.5 **Sub- contractors (5No. Subcontractors)** • 50Million and above project ---------- 2 • 40-49 Million project ..... 1.5 • 30-39 Million and below project ---------- 1 • 29 and below Million and below project ---------- 0.5 ***Note:*** 1. ***Marks shall be awarded only for completed projects supported by evidence of a duly filled stamped and signed completion certificate.*** 2. ***Sub-Contractors that present more than one project, only one project will be considered i.e the one with the highest value and having a completion certificate***		**20**	

ITEM	DESCRIPTION	POINT SCORED	MAX. POINT	
3	On-going projects including Sub/Contracts – **Provide Evidence of 2No. projects (Awardletter, LPO and/or Contract Agreement)** **Main Contractor -Project 1** • 50 Million and above project ----------2.5 • 40-49 Million project ..... 2 • 30-39 Million project---------- 1.5 • 20-29 Million project---------- 1 • 20 Million and below project ---------- 0.5 **Main Contractor -Project 2** • 50 Million and above project ----------2.5 • 40-49 Million project ..... 2 • 30-39 Million project---------- 1.5 • 20-29 Million project---------- 1 • 20 Million and below project ---------- 0.5		**5**	
4	Schedule of contractor's equipment and transport **(provide proof orevidence of ownership/Lease e.g log book contract lease agreement) – Main Contractor** NO. Description Marks a Relevant Transport (pick- up,1 no.) 2.5 Relevant Transport (lorry,1 no.) 2.5 b Provide a list of at least Ten(10) key equipment owned or leased by the company that will be used in the execution of the works. Key equipment requires: Hoisting Equipment, Scaffolding, Ladders, cross cutter machine, mixer, poker vibrator, electric drill, tile cutter, Grinder, welding machine etc (0.5mks for each to a maximum of Ten(10) equipment 5		**10**	**20**
	b) Relevant Tools and Equipment **(For 5No. Sub-contractors)** NO. Description Marks b Each subcontractor to provide a list of at least Ten (10) key tools and equipment owned or leased by the company that will be used in the execution of the works. (0.2mks for each to a maximum of Ten (10) tools and equipment per subcontractor i.e 2mks maximum. 10		**10**	
5	**Financial report (Main Contractor)** **a)** Average Annual Turnover **(From Audited Accounts for the last 3years -, (20/21,21/22,22/23) for Main Contractor only** • 60 Million and above ----------15 • 45-59 Million ..... 10 • 25-44 Million---------- 5 • 24 Million and below ---------- 0		15	
6	**b)** Evidence of Financial Resources and access to credit facility (cash in hand, lines of credit, Over draft facility etc.)**- Bank/Creditors/Letters dated not earlier thanJanuary 2024)** **Main Contractor** • 60 Million and above ----------15 • 45-59 Million ..... 10 • 25-44 Million---------- 5 • 24 Million and below ---------- 0		15	

ITEM	DESCRIPTION	POINT SCORED	MAX. POINT
7	Bank Details and letter of authorization to seek information from the bank **(Main Contractor)** • Attached ----------2 • Not Attached 0		**2**
8	Litigation History/Affidavit signed and Stamped by an Attorney/ Commissioner for Oaths **(Main Contractor)** • Attached ---------- 3 • Not attached 0		**3**
	TOTAL		**100**

Note:

1. **The minimum technical score required to pass is 70 Marks. Any bidder who scores 70 Marks and above shall be considered for further evaluation.**

STAGE 3: FINANCIAL EVALUATION CRITERIA

1. The responsive bids from technical evaluation stage above shall be considered for financial evaluation.
2. The Tender evaluation committee shall check the Bills of quantities for accuracy and arithmetic error.
3. Any Errors in the submitted tender arising from a miscalculation of unit price, quantity, 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 (Ref Section 74 (2) of the Public Procurement and Disposal Act,2015.
4. Prices will be guided by prevailing market rates at the time of tender in line with BORAQS (Board of Registration of Architects and Quantity Surveyors) and Institute of Quantity Surveyors of Kenya (IQSK) rates. Abnormally Low/ High Tenders will be rejected.
5. The responsive bids from financial evaluation stage shall be ranked from the lowest bid price to the highest bid price.
6. The lowest ranked bidder shall be considered for the award subject to being within the budget. Award shall be to the lowest evaluated responsive bidder. The firm achieving the lowest evaluated price will be awarded the contract in line with Section 86 of the Public Procurement and Disposal Act,2015.

STAGE 4: DUE DILIGENCE

KenGen shall prior to award of the tender determine to its satisfaction whether the selected bid will qualify to perform the contract satisfactorily by carrying out a due diligence through site visit to bidder's Office and/or site where the bidder is offering similar project/s.

3.0 TENDER EVALUATION (ITT 35)

Price evaluation: in addition to the criteria listed in ITT 35.2 (a) – (d) the following criteria shall apply:

(i) Alternative Completion Times, if permitted under ITT13.2, will be evaluated as follows: N/A
Alternative Technical Solutions for specified parts of the Works, if permitted under ITT 13.4, will beevaluated as follows: N/A

(ii) Other Criteria; if permitted under ITT 35.2(j): N/A

4.0 MULTIPLE CONTRACTS

4.1 Multiple contracts will be permitted in accordance with ITT 35.4. Tenderers are evaluated on basis ofLots and a 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, providedthe tenderer meets the Eligibility and Qualification Criteria for that Lot.

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

OPTION2

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

5.0 ALTERNATIVE TENDERS (ITT 13.1)

Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 3.1, will be evaluated as follows:

The Procuring Entity shall 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.

6.0 MARGIN OF PREFERENCE

6.1 If the TDS so specifies, the Procuring Entity will grant a margin of preference of fifteen percent (15%) to be loaded on evaluated prices of the foreign tenderers, where the percentage of shareholding of Kenyan citizens is less than fifty- one percent (51%).

6.2 Contractors shall be asked to provide, as part of the data for qualification, such information, includingdetails of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contractor or group of contractors qualifies for a margin of preference.

6.3 After Tenders have been received and reviewed by the Procuring Entity, responsive Tenders shall be assessed to ascertain their percentage of shareholding of Kenyan citizens. Responsive tenders shall beclassified into the following groups:

i) *Group A:* tenders offered by Kenyan Contractors and other Tenderers where Kenyan citizens holdshares of over fifty one percent (51%).

ii) *Group B:* tenders offered by foreign Contractors and other Tenderers where Kenyan citizens holdshares of less than fifty one percent (51%).

6.4 All evaluated tenders in each group shall, as a first evaluation step, be compared to determine the lowest tender, and the lowest evaluated tender in each group shall be further compared with each other. If, as a result of this comparison, a tender from Group A is the lowest, it shall be selected for the awardof contract. If a tender from Group B is the lowest, an amount equal to the percentage indicated in Item 6.1 of the respective tender price, including unconditional discounts and excluding provisional sums and the cost of day works, if any, shall be added to the evaluated price offered in each tender from Group B. All tenders shall then be compared using new prices with added prices to Group B and the lowest evaluated tender from Group A. If the tender from Group A is still the lowest tender, it shallbe selected for award. If not, the lowest evaluated tender from Group B based on the first evaluation price shall be selected.

7. Post qualification and Contract ward (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 bethe 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 anycontractual advance payment) sufficient to meet the construction cash flow of Kenya Shillings

ii) Minimum average annual construction turnover of Kenya Shillings_____*[insert amount]*, equivalent calculated as total certified payments received for contracts in progressand/or completed within the last_____*[insert of year]* years.

iii) At least_____*(insert number)* of contract(s) of a similar nature executed within Kenya, or the East African Community or a broad, that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor each of minimum value Kenya shillings ---------- equivalent.

iv) Contractor's Representative and Key Personnel, which are specified as ---------- Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed as *[specify requirements for each lot as applicable]*_____

iv) 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---------- . The required information shall be furnished in the appropriate form.

b) Pending Litigation

Financial position and prospective long-term profit ability 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 thelast _____*(specify 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 consistenthistory of awards against the Tenderer or any member of a JV may result in rejection of the tender.

TECHNICAL EVALUATION - QUALIFICATION FORM*

1	2	3	*4*	*5*
Item No.	**Qualification Subject**	**Qualification Requirement**	***Document To be Completedby Tenderer***	***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 forKenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by Kenya Revenue Authorityin accordance with ITT 3.14.	Attachment	
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 PPRA 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 suppliedunder the contract	To have their origin in any country that is not determinedineligible under ITT 4.1	Forms ELI – 1.1 and 1.2, withattachments	
7	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1st January […]	Form CON-2	
8	Suspension Based on Execution of Tender/Proposal SecuringDeclaration 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 beresolved against the Tenderer.	Form CON – 2	
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1st January *[2020].*	Form CON – 2	

1	2	3	*4*	*5*
Item No.	**Qualification Subject**	**Qualification Requirement**	***Document To be Completedby Tenderer***	***For Procuring Entity's Use (Qualification met or Not Met)***
11	Financial Capabilities	(i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, linesof credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as Kenya Shillings *[60M]* equivalent for the subject contract(s) net of the Tenderer's other commitments. (ii) The Tenderers shall also demonstrate, to the satisfactionof the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works	Form FIN – 3.1, with attachments (Accompanied with a certified bank statementor a letter from the bank indicating lines of credit)	

1 Item No.	2 Qualification Subject	3 Qualification Requirement	*4* *Document To be Completedby Tenderer*	*5* *For Procuring Entity's Use (Qualification met or Not Met)*
		currently in progress and for future contract commitments. (iii) The audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statementsacceptable to the Procuring Entity, for the last *[3]* 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 Kenya Shillings *[insert amount]*, equivalent calculated as total certified payments received for contracts in progress and/orcompleted within the last *[insert of year]* years, divided by *[insert number of years]* years	Form FIN – 3.2	
13	General Construction Experience	Experience under construction contracts in the role of primecontractor, JV member, sub-contractor, or management contractor for at least the last *5 years*, starting 1st January *2019*	Form EXP – 4.1	

14	Specific Construction &Contract Management Experience	A minimum number of *5* similar contractsspecified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between1st January [*2019*] and tender submission deadline i.e. …. (5) contracts, each of minimum value Kenya shillings .....equivalent. 1. The similarity shall be based on the physical size, complexity, methods/technology and/or other characteristics described in the Bills of Quantities and Drawings. Summation of number of small value contracts (less than the value specified underrequirement) to meet the overall requirement will not be accepted. 2. Substantial completion shall be based on 80% ormore works completed under the contract. 3. For contracts under which the Bidder participatedas a joint venture member or sub-contractor, only the Bidder's share, by value, shall be considered to meet this requirement. 4. In the case of JV, the value of contracts completed	Form EXP 4.2(a) Bidders shall attach copies ofthe following; a) Letter of Award or, b) Signed Contract andCompletion Certificatefor the respective projects or c) If project is ongoing, itmust be at 80% complete. Bidder to attach copies of iterm payment certificates	

1	2	3	*4*	*5*
Item No.	**Qualification Subject**	**Qualification Requirement**	***Document To be Completedby Tenderer***	***For Procuring Entity's Use (Qualification met or Not Met)***
		by its members shall not be aggregated todetermine whether the requirement of theminimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whetherthe JV meets the requirement of total number of contracts, only the number of contracts completedby all members each of value equal or more than the minimum value required shall be aggregated		
15	Contractors' keyequipment	Main Contractor **Notes** • If the equipment is owned, must provide CLEARcopies of logbook or proof of ownership. • If equipment is hired or leased Provide a commitment letter from the lessor of the equipmentindicating that the lessor shall avail the equipment upon award of the tender and submit a copy of a written agreement to lease between lessee and lessor indicating list of equipment and their corresponding copies of log books or proof of ownership by lessor; • The equipment listed shall be available on sitewhen required	Form EQU: Equipment	

1	2	3	*4*	*5*
Item No.	**Qualification Subject**	**Qualification Requirement**	***Document To be Completedby Tenderer***	***For Procuring Entity's Use (Qualification met or Not Met)***
16	Contractor's Representative and KeyPersonnel	Minimum qualifications and technical experience **Note: Copies of certificates to be provided as evidence**	Form PER -1 & Form PER - 2(For each proposed staff accompanied by relevant certificates)	

SECTION IV - TENDERING FORMS

QUALIFICATION FORMS

1. FOREIGN TENDERERS 40%RULE

Pursuant to ITT 3.9, a foreign tenderer must complete this form to demonstrate that the tender fulfils this condition.

ITEM	Description of Work Item	Describe location ofSource	COST in K. shillings	Comments, if any
A	Local Labor			
1				
2				
3				
4				
5				
B	Sub contracts from Local sources			
1				
2				
3				
4				
5				
C	Local materials			
1				
2				
3				
4				
5				
D	Use of Local Plant and Equipment			
1				
2				
3				
4				
5				
E	Add any other items			
1				
2				
3				
4				
5				
6				
	TOTAL COST LOCAL CONTENT		XXXXX	
	PERCENTAGE OF CONTRACT PRICE			

2. 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 informationn	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 □ Owned □ Rented □ Leased □ 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	

3. FORM PER -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

	Title of position: Contractor's Representative	
	Name of candidate:	
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled forthis position*]
	Expected time schedule for thisposition:	[*insert the expected time schedule for this position (e.g. attach highlevel Gantt chart*]
	Title of position: *[_____]*	
	Name of candidate:	
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled forthis position*]
	Expected time schedule for this position:	[*insert the expected time schedule for this position (e.g. attach highlevel Gantt chart*]
	Title of position: *[_____]*	
	Name of candidate:	
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled forthis position*]
	Expected time schedule for thisposition:	[*insert the expected time schedule for this position (e.g. attach highlevel Gantt chart*]
	Title of position: *[_____]*	
	Name of candidate:	
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled forthis position*]
	Expected time schedule for thisposition:	[*insert the expected time schedule for this position (e.g. attach high level Gantt chart*]

	Title of position: *[insert title]*		
	Name of candidate		
	Duration of appointment:	[*insert the whole period (start and end dates) for which this position will be engaged*]	
	Time commitment: for this position:	[*insert the number of days/week/months/ that has been scheduled forthis position*]	
	Expected time schedule for this position:	[*insert the expected time schedule for this position (e.g. attach high level Gantt chart*]	

4. FORM PER – 2:

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

Name of Tenderer		
Position [*#1*]: [*title of position from Form PER-1*]		
Personnel information	Name:	Date of birth:
	Address:	E-mail:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: *[language and levels of speaking, reading and writingskills]*	
Details		
	Address of Procuring Entity:	
	Telephone:	Contact (manager / personnelofficer):
	Fax:	
	Job title:	Years with present Procuring Entity:

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

Project	Role	Duration of involv ement	Relevant experience
[main project details]	*[role and responsibilitieson the project]*	*[timein role]*	*[describe the experience relevant tothis position]*

Declaration

I, the undersigned *[insert either "Contractor's Representative" or "Key Personnel" as applicable]*, 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:	*[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]*
Time commitment:	*[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]*

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): _____

5. TENDERERS QUALIFICATION WITHOUT PREQUALIFICATION

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.

5.1 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: *[indicate country of Constitution]*
	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 ☐ 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 ☐ In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 ☐In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: • Legal and financial autonomy • Operation under commercial law 1. Establishing that the Tenderer is not under the supervision of the Procuring Entity 2. Included are the organizational chart and a list of Board of Directors

5.2 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 ☐ 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. ☐ 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 3.5. 2. Included are the organizational chart and a list of Board of Directors.

5.3 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			
☐ Contract non-performance did not occur since 1st January *[insert year]* specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1. ☐ Contract(s) not performed since 1st January *[insert year]* specified in Section III, Evaluation and Qualification Criteria, requirement 2.1 ☐ Contract(s) withdrawn since 1st January *[insert year]* 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)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Procuring Entity: *[insert full name]* Address of Procuring Entity: *[insert street/city/country]* Reason(s) for nonperformance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
☐ No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3. ☐ Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3as indicated below.			

Year of dispute	**Amount in dispute (currency)**	**Contract Identification**	**Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)**
		~~Contract~~ Identification: ~~Name of Pro~~curing ~~Entity: Ad~~dress of ~~Procuring Entity~~: Matter in dispute: Party who initiated the dispute: Status of dispute: _____	

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:	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria			
☐ No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4. ☐ Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below.			
[insertyear]	*[insert percentage]*	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Entity: *[insertfull name]* Address of Procuring Entity: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Procuring Entity" or "Contractor"]* Reason(s) for Litigation and award decision *[indicate main reason(s)]*	*[insert amount]*

Include details relating to potential bid-rigging practices such as previous occasions where tenders were withdrawn, joint bids with competitors, subcontracting work to unsuccessful tenderers, etc.

5.4 FORM FIN – 3.1:

Financial Situation and Performance

Tenderer's Name: _____
Date: _____
JV Member's Name_____
ITT No. and title: _____

5.4.1. Financial Data

Type of Financial information in_____ (currency)	**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 OperatingActivities					

*Refer to ITT 15 for the exchange rate

5.4.2 Sources of Finance

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

	Source of finance	Amount (Kenya Shilling equivalent)

5.4.3 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 (suchas parent company or group member).

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

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

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

☐ Attached are copies of financial statements[1] for the_____years required above; and complying with therequirements

[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.

5.5 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 Shilling equivalent**
[indicate year]	*[insert amount and indicate currency]*		
Average Annual Construction Turnover *			

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

5.6 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 subjectcontract or contracts as specified in Section III, Evaluation and Qualification Criteria

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

5.7 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 thathave 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					
No.	**Name of Contract**	**Procuring Entity's Contact Address, Tel,**	**Value of Outstanding Work [Current KenyaShilling /month Equivalent]**	**Estimated Completion Date**	**Average Monthly Invoicing Over Last Six Months [Kenya Shilling /month)]**
1					
2					
3					
4					
5					

5.8 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 theTenderer:_____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by theTenderer:_____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by theTenderer:_____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	

5.9 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 ▫	Memberin JV	Management Contractor ▫	Su b-co
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:				

5.9 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	PrimeContractor ▫	Memberin JV	Management Contractor ▫	Su b-co
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 numberE-mail:				

5.9 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	

5.10 FORM EXP - 4.2(b)

Construction Experience in Key Activities

Tenderer's Name: _____
Date: _____
Tenderer's JV Member Name: _____
Sub-contractor's Name[2] (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 No One: _

	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor	Member in JV	Management Contra	Sub-contractor
Total Contract Amount			**Kenya Shilling**	
Quantity (Volume, number or rateof 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 numberE-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

6. FORM OF TENDER

(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

INSTRUCTIONS TO TENDERERS

i) All italicized text is to help the Tenderer in preparing this form.

ii) The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer'scomplete name and business address. Tenderers are reminded that this is a mandatory requirement.

iii) Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and theSELF DECLARATION FORMS OF THE TENDERER as listed under (xxii) below.

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

Tender Name and Identification ..... *[Insert identification]*

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

To .....*[Insert complete name of Procuring Entity]*

Date of this Tender submission: *[insert date (as day, month and year) of Tender 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 ofthe above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum[3] of Kenya Shillings [*[Amount in figures]*_____Kenya Shillings *[amount inwords]*

The above amount includes foreign currency[4] amount (s) of [*state figure or a percentage and currency*] [figures]
_____[words] _____

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt ofthe Architect notice to commence, and to complete the whole of the Works comprised in the Contract within the timestated in the Special Conditions of Contract.

3. We agree to adhere by this tender until_____*[Insert date],* and it shall remain binding upon us andmay be accepted at any time before that date.

4. We understand that you are not bound to accept the lowest or any tender you may receive.

[3] *This sum should be carried forward from the Summary of the Bills of Quantities.*
[4] *The percentage quoted above should not include provisional sums, and not more thantwo foreign currencies are allowed.*

5. We, the under signed, 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 accordancewith 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 thevarious amounts and the respective currencies*]; or

Option2, 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 andthe 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 variousamounts 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: [*Specifyin 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 shallremain 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 withthe 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 sub-contractor, and meet the requirements ofITT 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, Engineer, manufacturers, or serviceproviders for any part of the contract, are not subject to, and not controlled by any entity or individual that is subjectto, 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- ownedenterprise or institution*]/[*We are a state-owned enterprise or institution but meet the requirements of ITT3.8*];

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 here by 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; and

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 TenderDetermination" attached below.

xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from_____(*specify website*) during the procurement process and theexecution of any resulting contract.

xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.

xxii) We, the Tenderer, have duly completed, signed and stamped 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 othertenderers.

(a) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraudand corruption.

(d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and AssetDisposal.

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

Name of the Tenderer: *[*insert complete name of person signing the Tender*]

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [*insert complete name ofperson 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*]

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 theTender	
3	Date and Time of TenderOpening	
4	Name of the Tenderer	
5	Full Address and ContactDetails 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 andExpiring date	
7	Name, country and full address (*postal and physicaladdresses, email, and telephone number*) 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, givename and full address (*postaland physical addresses, email, and telephone number*) 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 Kenya Shillings (Equivalent).....
Issued Kenya Shillings (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			

(iii) 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		

	Type of Conflict	Disclosure YES OR NO	If YES provide details of therelationship with Tenderer
4	Tender has a relationship with another tenderer, directly or through common third parties, thatputs it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding thistendering process.		
5	Any of the Tenderer's affiliates participated as a consultant in thepreparation of the design or technical specifications of the works that are the subject of the tender.		
	Type of Conflict	**Disclosure YES OR NO**	**If YES provide details of therelationship with Tenderer**
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 ProcuringEntity 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 suchcontract.		
8	Tenderer has a close business or family relationship with a professional staff of the ProcuringEntity who would be involved inthe implementation or supervision of the such Contract.		
9	Has the conflict stemming from such relationship stated in item 7and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.		

Certification

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

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 responseto the request for tenders made by:_____*[Name of Tenderer]* do hereby makethe 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 everyrespect;

3. I am the authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender onbehalf of the Tenderer;

4. For the purposes of this Certificate and the Tender, I understand that the word "competitor" shall include anyindividual 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 orexperience;

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 orarrangement 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 specificallydisclosed pursuant to paragraph (5)(b) above;

7. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regardingthe 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 THEMATTER 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 inprocurement proceeding under Part IV of the Act.

3. THAT what is deponed to here in 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 afore said 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 memberof 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 participatingin the subject tender

5. THAT what is deponed to here in 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 thePublic 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 here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurementand 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

1.1 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.

2. Requirements

2.1 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.

2.2 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 as set 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 in to, take part in any decision relating to the procurement or contract; and

c) shall not be a subcontract or for the tender to whom was awarded contract, or a member of the group of tenderers 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.

3. 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 toinfluence improperly the actions of another party;

ii) "fraudulent practice" is any act or omission, including is representation, that knowingly or recklessly misleads, orattempts 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; "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 improperlythe actions of a party;

iv) "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 fromdisclosing 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 rightsprovided 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 orthe 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 award[1] 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 incompeting for the contract in question;

d) Pursuant to the Kenya's above stated Acts and Regulations, may 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 inspect[2] 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 thatthey and all parties involved in the procurement process and contract execution have not engaged/will not engage inany corrupt or fraudulent practices.

---

[1] *For the avoidance of doubt, a party's in eligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interestin 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 there of 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_____(herein after called "the Applicant") has submitted or willsubmit to the Beneficiary its Tender (herein after 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'scomplying 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 resultsof 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.

FORM 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 Periodor 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 ValidityPeriod.

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.

FORM OF TENDER - SECURING DECLARATION

[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 on …… day 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 localcurrency _____ __	[*To be entered by the ProcuringEntity*]

PART II - WORKS REQUIREMENTS

SECTION V - SPECIFICATIONS

Notes for preparing Specifications

1. Specifications must be drafted to present a clear and precise statement of the required standards of materials, and workmanship for tenderers to respond realistically and competitively to the requirements of the Procuring Entity andensure responsiveness of tenders. The Specifications should require that all materials, plant, and other supplies to be permanently incorporated in the Works be new, unused, of the most recent or current models, and incorporating all recent improvements in design and materials unless provided otherwise in the Contract. Where the Contractor is responsible for the design of any part of the permanent Works, the extent of his obligations must be stated.

2. Specifications from previous similar projects are useful and may not be necessary to re-write specifications for everyWorks Contract.

3. There are considerable advantages in standardizing **General Specifications** for repetitive Works in recognized public sectors, such as high ways, urban housing, irrigation and water supply. The General Specifications should cover all classes of workmanship, materials and equipment commonly involved in constructions, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the General Specifications to the particular Works.

4. Care must be taken in drafting Specifications to ensure they are not restrictive. In the Specifications of standards for materials, plant and workmanship, existing Kenya Standards should be used as much as possible, otherwise recognized international standards may also be used.

5. The Procuring Entity should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in tender documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential tenderers.

6. The Procuring Entity should provide a description of the selected parts of the Works with appropriate reference to Drawings, Specifications, Bills of Quantities, and Design or Performance criteria, stating that the alternative solutions shall be at least structurally and functionally equivalent to the basic design parameters and Specifications.

7. Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology, and other relevant details. Technical alternatives permitted in this manner shall be considered by the Procuring Entity each on its own merits and independently of whether the tenderer has priced the item as described in the Procuring Entity's design included with the tender documents.

ELECTRICAL INSTALLATIONS PARTICULAR SPECIFICATIONS

PARTICULAR SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS

1. SCOPE

The Electrical Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the electrical works, clean, complete and working to every detail as described in the specification and by related specifications and on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

The electrical Contractor shall be responsible for the supply, delivery, installation, connection, testing and setting to work of the entire electrical system in accordance with the Contract Documents.

The electrical Contractor shall provide all the necessary tools, skilled and un-skilled labour to comply and complete in accordance with the main contractor's works program.

2. STANDARDS & REGULATIONS

The electrical portion of the works shall comply with the current regulations of:

- The Electric Power Act
- Electric Power Rules
- The Kenya Power and Lighting Co. Ltd.
- The latest Kenya Bureau of Standards.
- Codes of Practice of the British Standards Institution
- The Regulations for Electrical Equipment in buildings issued by the Institution of Electrical Engineers and Technologists (I.E.T)
- This specification.

3. POWERSUPPLY

The supply voltage at the point of use shall be

- 240 volts single phase or
- 415 volts 3 phase 50 Hz.

This shall be a TN-C-S system via separate neutral and protective conductor throughout the system.

4. CONDUIT INSTALLATIONS

4.1 GENERAL

All conduits shall be installed strictly in accordance with the manufacturer's instructions.

All conduit fittings and accessories, including couplers, ordinary clips, saddles, pipe hooks, reducers, stopping plugs, lockouts and male and female bushes shall be manufactured dimensionally, similar to B.S.S. 31/1940. Solid tees shall not be used. Solid inspection elbows or bends or inspection tees shall be used only in exceptional circumstances and then only with the Engineer's approval.

Where it eases the installation of cast-in-situ back entry boxes on the loop-in system, purpose made bends manufactured by Egatube and comprising a tight bend with a push socket at one end and a threaded socket at the other end may be used

with the Engineer's approval.

4.2 FIXING OF CONDUITS

Conduits shall be installed on the loop-in system and shall either be cast-in-situ in the main concrete structure, concealed in chases cast in concrete walls, or chases cut in solid partition walls, run in ceiling spaces or in hollow partitions of floors, or concealed below the floor screed, whichever shall prove to be the most suitable method of installation for use in the building under construction. Unless it is clearly specified or shown on the drawing, the method of installing conduits shall be subjected to the approval of the Engineer.

Sunken conduits run in chases in walls shall be fixed by means of mild steel pipe hooks or non-metallic saddles spaced not more than 1 m apart. Where a conduit is concealed behind plaster it shall be sunk to a depth of either 10 mm below finished plaster level, or installed flush with the structural wall level before application of plaster, whichever is the lesser depth

Conduit fixed on the surface of walls or ceiling shall be fixed by spacer bar saddles fixed not more than 1 m apart.

Surface conduit shall also be fixed 230 mm on both sides of all boxes, the box itself securely fixed. Where such an arrangement of boxes and saddles would prove to be both unsightly and unnecessary, short lengths of conduit not exceeding 1 m in length between boxes need not be secured further than by connection to the adjacent boxes. In such cases the **Engineer reserves the right** to insist upon additional fixing being provided, should he for any reason whatsoever consider such additional fixing necessary.

Where two or more lines of conduit run parallel to each other, on the surface of walls, etc., the distance between them shall not be less than 15mm and conduits shall not cross.

Conduits shall be installed in such a manner as to prevent interference with other services and shall be kept at least 180 mm clear of gas or water pipes, and heat in excess of 68 degrees C.

A means of expansion shall be provided in conduit runs in excess of 6 m without any bend or set, by use of 'Egetude' expansion couplings, which shall also be used at building expansion joints.

Conduits cast-in-situ shall be frequently secured to the steel reinforcement work, with heavy binding wire to prevent movement of the conduit and conduit boxes during the pouring and vibrating of the concrete. Outlet boxes shall be securely fixed to the shuttering with nails, or by means, which shall be visible as a marker on removal of the shuttering only where marks can be concealed.

Conduit shall be installed after the first grid of steel reinforcement work is securely fixed and all open ends of conduits shall be protected by couplings plugged with a suitable non-metallic stopping plug. **The number of right angle bends in conduit cast-in-situ shall not exceed two between boxes.**

Immediately prior to installation of the wiring all conduit and fittings shall be dried and cleaned out by drawing through a cloth swab. Rawl plugs shall be used for fixing to brickwork, self-tapping screws for fixing to aluminium section, raw nuts, raw-

anchors spring toggles, gravity toggles or raw bolts, shall be used for fixing to other materials as **approved by the Engineer.**

Corners shall be turned by easy bends or sets made in accordance with the manufacturer's instructions without altering the section or splitting conduit.

4.3 CONDUITS BENDING

The conduits shall be bent and formed strictly in accordance with the manufacturer's instructions: -

i. Small sizes, i.e. 20 and 25 mm shall be bent cold by inserting the correct size bending spring. It is essential for right angle bends that the conduit is bent past 90 degrees to allow for "spring back".
ii. Large size of conduit shall be pre-heated before inserting rubber cord to prevent kinking. Conduits badly formed or bent or damaged in any way shall not be used.

4.4 CIRCULAR BOXES INSPECTION

Boxes will not be permitted in floors unless approved. Boxes cast-in-situ must face downwards from the ceiling/floor section. Small standard circular non-metallic conduit boxes, conforming dimensionally with B.S. 31/1940 with standard circular non-metallic (4mm) lids and nylon fixing screws, shall be provided and fixed at all junctions.

The above circular boxes or equivalent looping boxes shall be provided and securely fixed for all ceiling points. When the conduit is run on the surface, all circular boxes for ceiling points shall be fixed with screws.

Where ceiling roses occur and the ceiling box is recessed below the finished level of the ceiling, suitable extensive rings to accommodate the ceiling rose must be provided. Where ceiling boxes, including extension rings, are flush with the ceiling surface, break joints rings shall be provided to hide the joints.

Where a non-metallic outlet box of thermoplastic material is used for the suspension of lighting fitting, care shall be taken to ensure that the temperature of the box does not exceed 60¤C. The weight suspended from the box shall not exceed 3 kg.

Where 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 circumstance be such that a space factor of 45% is exceeded.

Conduits and trunking shall be mechanically and electrically continuous. Conduits shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects. Oil and other insulating substances shall be removed from the screw threads. Where conduits terminate in fuse-gear, distribution board, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass brushes, compression washers and sockets. All exposed threads and abrasions shall be painted (using an oil paint for black enamelled tubing and 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 inter-position of a draw-in box.

Where straight runs of conduit are installed, draw-in boxes shall be provided at distances not exceeding 15 m. No tees, elbows, sleeves, either of inspection or solid type, will be permitted.

Conduits throughout shall be of sufficient section and so arranged with draw-in boxes to allow easy drawing in and out of any one or all of the cables in the conduit.

Conduits 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 150 mm clear of hot water and stem pipes, and at least 75 mm clear of cold water and other services unless otherwise approved by the Engineer.

Conduits installed and buried in walls shall allow a minimum of 15 mm cover. These conduits and those cast-in-situ concrete slabs shall be given one coat of rust prevention paint before installation of conduit and before concrete is placed. Sunk circular conduit boxes shall be provided with break joint rings of white moulded material or metal.

Surface conduit shall be run in square symmetrical lines and shall be marked on site for approval before installation. Conduits shall be fixed by means of distance saddles spaced at not more than 1.2 m for 20mm and 50mm conduit and 1.5 m for larger sizes.

Conduits shall be fixed at each side of conduit boxes at a distance not exceeding 250 mm, and the saddles shall be equally spaced.

Where conduit runs enter specified areas requiring flameproof equipment, barrier boxes shall be inserted immediately before the conduit enters the flameproof area.

All conduits installed within this area shall be solid drawn galvanized, as shall be conduit fittings and accessories and Buxton Certified as suitable for Group 11 Hazards. Equipment shall comply with B.S 229, B.S.S. 889, and C.P. 1003. In **NO CASE SHALL** conduits from different distribution boards be connected at one box, likewise cables from different distribution boards shall not be housed in the same conduit specified.

All conduit boxes except loop-in pattern concrete floor shall be fixed direct to the structure apart from the support provided by the conduits. Box lids where required, shall be heavy gauge metal, secured by means of zinc plated or cadmium steel screws. All adaptable boxes and lids of the same size shall be interchangeable.

Boxes used in conjunction with mineral insulated copper sheathed cable boxes shall be galvanized and painted after erection.

Draw-in boxes in the floor are generally to be avoided but where they are essential they must be grouped in positions **approved by the Engineer** and covered by suitable floor straps, either with non-ferrous tray or covers.

The floor trap covers are to be recessed and filled in with a material to match the

floor surface.

The Contractor must take full responsibility for the fillings of all covers, but the fillings in materials will be supplied and carried out by the Main Building Contractor.

Where it is intended to fix enclosed lighting fittings directly to a box to suspend a fitting of weight in excess of 3 kg, Egetude steel insert clips shall be used.

4.5 SWITCH AND SOCKET OUTLET BOXES

All boxes intended for switches, socket outlets or other outlets shall be fitted with brass ferrules to accommodate fixing screws.

All other conditions are as stated in item above on Circular boxes.

4.6 STOPPING PLUGS

All spare ways in junction boxes, etc., left for possible future extensions shall be fitted with the stopping plugs.

4.7 JOINTING

Joints shall be made water-tight by the use of 'Egaweld' cement applied with a brush or rug. 'Egaweld' shall be applied to the complete circumference of conduit. Conduit shall be thoroughly cleaned at the ends to ensure a good adhesion of the fittings. 'Egaweld' shall not be permitted to enter into the conduit.

4.8 CAPACITY OF CONDUITWORK

The cables shall run in the conduits so as not to exceed the capacities as set out in the IEE Regulations.

Conduits shall be best quality new super high impact grade heavy gauge 'A' riding PVC unplasticised conduits as manufactured by Egetude suitable for plain connections.

Conduits of sizes less than 20 mm shall not be used without the written authority of the Engineer.

5. TRUNKING INSTALLATIONS

Trunking shall only be installed in situations which will remain readily accessible throughout the life of the buildings. No cable trunking shall be installed behind a plastered ceiling or in other inaccessible situations.

All cable trunking shall comply with BS 4678, part 1 "Steel surface trunking" and part 2 for "Steel under floor (duct) trunking".

Sheet steel cable trunking may be used on installations employing steel conduits, for connecting two or more switchboards together or where several conduits would otherwise have to run alongside each other. Proper allowance should be made for the derating of cables installed together in a container system. The cables must be capable of carrying the current imposed by the equipment connected. Attention is drawn to Chapter 52 of the IEE Regulations, particularly Section 522, 523 and Appendix 4: the current carrying capabilities of cables indicated shall not be exceeded. The Engineer must be consulted as to precise details concerning trunking routes and applications.

All lengths of trunking shall be heavy gauge zinc coated steel connected together by internally fitted rectangular couplings of sufficient width to provide a minimum bearing face of 25mm, to which the lengths shall be bolted on site or welded at the

factory.

Adequate provision shall be made to allow for expansion.

All Tee pieces and bends shall be formed with similar means of connection and the inner radii area shall be such that cables will not be bent through a radius less than that prescribed in the IEE Regulations. Only bends and tees of approved pattern will be accepted.

All fixing screws within the trunking shall be of the round head type. The trunking shall have an over-lapping well-fitted lid securely fixed to the trunking by approved means that will avoid damage to the cables. Self-tapping screws shall not be used.

All necessary accessories including long sleeve couplings, end piece, bends, sets, tees, reducers, branches, fillets, pin racks, cable retainers etc., shall be purpose-made units rather than being fabricated on site.

Where a change in direction of trunking run occurs, the deviation should be effected by a purpose-made unit manufactured on similar lines to the bends and tee pieces described above. Where this is not practical, changes in direction shall be fabricated in a neat workmanlike manner. All joints shall fit closely and gaps will not be permitted. All burrs and sharp edges shall be removed and no screw shall protrude into or out of the trunking.

Trunking shall be firmly attached to its associated equipment either by bolted flanges or by male bushes and couplings.

Where trunking is connected to equipment by means of flange connectors, the entry into the equipment shall be of the same cross-section as the trunking.

Where trunking does not terminate in equipment, the otherwise open end shall be capped with a cover suitably bolted in position.

Where communications, extra low voltage circuits (category 1) etc., are contained in a trunking, the requisite number of separate compartments shall be provided to segregate the wiring. Where conduits are taken off such trunking they shall not pass through other compartments unless prior permission is obtained from the Engineer.

The entire trunking is required to be recessed in the structure of the building; the finished edge of the trunking is to be installed flush with the plaster work.

Trunking runs shall be so arranged that the lid or cover plate is always on the top or side and not underneath, unless this cannot be avoided, in which case the Engineer's permission shall be obtained.

Wherever trunking passes through walls, vertical partitions etc., a fixed piece of trunking lid shall be fitted to the trunking extended 25 mm either side of the wall or other barrier, this is to allow removal of the adjacent lid without disturbing the building fabric. Care shall be taken to ensure that no opening is left between the trunking and the building structure through which fire might spread.

In addition, a suitable barrier of incombustible material shall be provided and fitted inside the trunking, in accordance with the IEE Regulations 528. On vertical runs of trunking internal incombustible barriers shall be fitted at the distance between floors or 5m, whichever is the less, in accordance with IEE Regulations 527.1.

All necessary trunking support work, hangers, brackets and fixing requirements

shall be provided by the electrical Contractor.

Earth links of the appropriate size and type shall be installed at every jointing coupling manufactured bend, etc., throughout the entire trunking system. Where trunking is used to provide a protective conductor it shall comply with the requirements of Chapter 54 of the IEE Regulations, particularly Section 543; alternatively, a separate protective conductor shall be installed in the trunking to comply with section 543 of the IEE Regulations.

In cases where sheet steel trunking is installed and there is danger of movement, a flexible earth conductor shall be installed bonding all joints in the trunking. This shall be fitted in addition to the standard earth links. Cable retaining strips shall be fitted at 1 m intervals. Insulated cable support pins shall be fitted at intervals of 4 m in vertical runs of trunking and at the top of the vertical trunking.

6. INSTALLATION OF CABLES

6.1 GENERAL

Cables shall be rated for the maximum connected load with due consideration to the following factors: -

i. Voltage drops not in excess of 4% of the nominal voltage.
ii. Ambient temperature.
iii. Degree of excess-current protection.
iv. Grouping
v. Cables run under defined conditions.

6.2 BENDING OF CABLES

Bending of cables shall be in accordance with clause 522.8.3 of the IEE Regulations and no cable shall be bent to radius less than that specified by the cable manufacturers.

6.3 JOINTS IN CABLES

The wiring shall be carried out on the looping-in principle. All joints shall be made at the terminals of main switches, distribution boards, ceiling roses, switches and socket outlets, etc. and fixed apparatus only. **No joints** shall be made in conduits and other cable raceways unless specifically approved.

6.4 PVC / XPLE INSULATED CABLE

The wiring shall be carried out in 250 Volt grade or 440 Volt grade for 3 phase PVC / XLPE Insulated cables, as specified elsewhere run drawn in non-metallic conduits. The cables shall be of the sizes specified on the drawing.

6.5 WIRING INSTALLATION

Cables shall be drawn into accessories, distribution boards and switchgear **after** the erection of the conduit system. Under no circumstances shall it be permitted to draw cables into an incomplete section of the conduit installation.

6.6 CABLES IN CONDUITS AND TRUNKING

All cables shall be polyvinyl chloride (PVC) insulated to BS 6604, "PVC-insulated cables (non-armoured) for electric power lighting", 450/750-volt grade, or cross linked polyethylene (XPLE) unless an alternative is specified elsewhere in the contract documents.

The quality and size of cables contained in any one conduit shall comply with IEE

Regulations.

No cable with a cross-section area of less than 1.5mm2 shall be used. All cables installed in a conduit or trunking system shall be PVC / XLPE insulated conductors and shall be colour coded in accordance with the IEE Regulation 524.3 and 514.3.

Final sub-circuits shall be run in conduits separate from main or sub-main cables.

All cables in conduit shall be drawn in simultaneously.

All cables shall be drawn in without the use of excessive force, without the use of lubricants and the wiring shall be easily withdrawable.

6.7 TERMINATION OF CABLES

Cables shall be terminated in accordance with **Chapter 52 of the IEE Regulations, particularly Section 527.**

Cables shall be terminated by one of the following methods: -

a) The cable conductors shall be sweated into lugs of the appropriate size for the cable and equipment terminal.
b) The cable conductors shall be secured by compression type lugs of the correct size for the cable and equipment terminal.
c) The cable conductors shall be secured in pinch screw terminals.
d) The cable shall be secured by means of clamps.

Where cables are required to terminate at connectors, as at lighting points, such connectors shall secure all the strands of stranded cables. Care shall be taken to ensure that cables are not damaged during preparation for termination.

Cables terminating at pinch screw terminals shall be twisted together and single cables shall have the conductor doubled back to ensure adequate surface for pinching screws.

Cables connected to lamp holders or other components at which heat is produced shall be insulated with heat resisting material capable of withstanding, without detriment, the temperature encountered.

All terminations on PVC/SWA/PVC insulated cables shall be by compression type glands of an approved design and manufacture with facilities for clamping the armouring the outer sheath of the cable.

Glands mounted outdoors shall incorporate a seal to prevent ingress of moisture into the gland, and all glands shall be fitted with a thermoplastic shroud.

Where circular terminations are to be made, these shall be completed using Ross Counterney terminals.

Where cables are terminated in "Klippon" type terminals with parallel faced jaws, the individual cores shall be terminated using the appropriate flat or hook blade crimped lugs. Where the terminal faces are concaved, the cores shall be terminated in wires pin crimped lugs.

The electrical Contractor shall avoid multiple connections under one screw or one pin. Where more than two wires are required, a common termination jumper bar shall be used.

Terminals shall be mounted on rails or supports. All internal wiring is to be clearly marked by markers.

6.8 SEGRAGATION OF SERVICES

Cables of differing voltages shall be segregated so that there is no possibility of a fault in a power cable damaging any adjacent cables or imposing a different voltage upon them in accordance with **IEE regulation 528.**

6.9 IDENTIFICATION OF CABLES

All cables shall be fitted with non-corrosive cable identification bands at each end, and at all changes of direction where they leave a group of cables. All cable cores connected to equipment having marked terminals shall be fitted with non-corrosive identification bands bearing markings corresponding to those of the terminals at both ends.

7. EARTHING

All earthing shall be as PME Earthing (TN-C-S) System

The whole of the metallic portion of the installation, other than current carrying parts, shall be electrically and mechanically bonded to the consumer's main earth terminal and also if applicable, to the lightning protection system or other points specified.

The installation shall be earthed in accordance with the Seventeenth Edition of the Regulations for Electrical Installation issued by the IEE, BS CP1013, "Earthing" and BS 6651' "The protection of structures against Lightning". The electrical Contractor's attention is drawn to Chapter 54 of the IEE Regulations and to the Earthing and Lightning Protection Consultants Handbook publication CHB/4/95 by W. J. Furse & Co Ltd.

A main earth terminal shall be supplied and installed adjacent to the electricity supply cable termination. The terminal shall be of ample size and capacity to suit the installation. All items of equipment, switchgear, etc., shall be bonded to this earth terminal using PVC / XLPE insulated PVC / XLPE sheathed cables, coloured green and yellow as per table 51 and sized in accordance with **section 543 of the IEE Regulations**. An invorine label reading **"SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE" in engraved upper case characters not less than 4.75mm high**, shall be permanently fixed immediately adjacent to or on the earth terminal.

A heavy duty copper clamp **complying with BS. 951** shall be used to bond the main protective conductor to the electricity supply cable armouring or metallic sheath (where applicable the armouring and sheath shall be bonded together).

All protective conductors shall, where possible, be enclosed within metal trunking or conduit serving switchgear, distribution board etc., so as to provide mechanical protection. Where protective conductors are run on building surfaces they shall be properly fixed and supported by means of PVC coated metal saddles along selected routes.

Earth continuity between separate items of switchgear, distribution boards etc., mounted adjacent to one another shall be affected by means of high conductivity continuous copper tape, or PVC / XLPE sheathed cable, coloured green and yellow **as per table 51** and sized in accordance with the **Section 543 of the IEE Regulations**, connecting all items to the earth terminal.

All items of switchgear, accessories, luminaires, conduits, and the outer sheaths of MICC cables, the armouring of all PVC/SWA/PVC cables together with all other

items of electrical plant and equipment shall be effectively earthened by means of a protective conductor.

At every terminal point on the fixed wiring an integral earth terminal shall be provided e.g BESA boxes, accessory boxes etc. A protective conductor shall be provided and installed between this terminal and the earth terminal on the associated switch, socket outlet, luminaire etc.

Each circuit protective conductor shall be connected to a multiway earth terminal provided and fixed within each distribution board. The earth terminal shall be provided with an adequate number of ways such that not more than one conductor per terminal shall be installed and the earthing conductors shall be connected in the same sequence as the current carrying conductors.

All metal piped services, e.g., Heating, Water and Gas Services, wastes and piped services at sinks, baths and showers etc., shall be bonded to the earth terminal in accordance with the **IEE Regulations 411.3.1.2.**

A 50 mm section of each gas and water pipe, at position close to their entry into the relevant building, shall be cleaned and made smooth. A copper-earthing clamp designed to permit the connection of protective conductors shall be provided and sized in accordance with **Section 543 of the IEE Regulations.**

The clamp shall be a proprietary type or shall be fabricated from high conductivity copper strip, minimum size 40 mm x 4 mm which shall encircle the cleaned sections of the pipe. A permanent label indelibly marked with the words, "**SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE**" in legible type not less than 4.75 mm high, shall be permanently fixed at the points of connections.

The final connection of bonding conductors from gas, water pipes and other services to the earthing terminal shall not be completed until earth electrode and earth impedance tests have been satisfactorily completed.

Bonding connections to pipework shall be as un-obstructive as possible and where practicable shall be made in service ducts or accessible voids and shall be indicated on the Record Drawings.

All materials and sundry item shall be provided whether or not specifically mentioned necessary to completely and effectively earth the installation. The installation shall be fully protected against dampness and corrosion and the effect of electrolytic action between dissimilar materials. A completely permanent installation shall be provided which shall be fully accessible for regular testing and inspection.

The value of earth resistance from any point of an installation to the general mass of earth shall be low enough to ensure operation of circuit protective devices and shall in any case not exceed the following:

i. **Four (4) ohms for electrical equipment**
ii. **One (1) Ohm for ICT Equipment**
iii. **Seven (7) ohms for lightning protection system**

Each earthing cable shall terminate in an approved design of cable lug.

Where earth conductors are run upon structures or walls they shall be fastened by means of heavy gauge non-ferrous fasteners not more than 0.75 m apart on horizontal runs and not more than 1.2 m apart on vertical runs and to give a

minimum clearance of 4 mm from the fixing face.

In the event of the electrical Contractor not being able to establish a suitable earth connection to the electricity supply cable, earth electrodes shall be installed which shall be galvanized or copper clad steel extendable rods not less than 16 mm diameter and not less than 1.2 m in length. Connections to electrodes shall be made by means of solderless mechanical clamps.

To avoid corrosion, all earth system connections shall be cleaned bright and immediately covered with silicon MS4 compound or approved equal.

Earth pits, where required, shall be in accordance with the Contractor's relevant drawings, with the facility to disconnect the earth ring while measuring the electrode earth resistance.

Where fittings and accessories require earthing, an earth continuity conductor shall be run through the conduit. The earth continuity conductor shall be a green coloured PVC / XLPE insulated copper wire of minimum size 2.5 sq. mm and shall be continuous between terminals. Where the earth terminal is formed by a brass screw and washer, "Ross Courtney" type terminations shall be used. All switches, socket outlets, ceiling boxes etc., shall be supplied with an earth terminal.

Earth Continuity: Each final sub-circuit that is required to be earthed shall be provided with its own individual earth continuity conductor which shall be run from a terminal on the earth bar in the distribution board or consumer's control unit protecting that particular final sub-circuit.

8. FUSED SWITCH UNITS, SWITCHFUSES AND ISOLATORS

The above units comply with **BS 5419 and shall be 500-volt type** and installed where specified and indicated on the relevant drawings.

All switchgear shall be provided with suitable locks for padlocking the switches in the 'OFF' position. The cover shall be interlocked with the operating mechanism to prevent it from being opened in the 'ON' position. This interlocking shall also prevent the switch from being closed with the cover open unless for maintenance purposes. The cover shall be gasketted to prevent ingress of dust.

The switch action mechanism shall be of the parallel operation (double break type having cartridge fuses mounted switches) and shall be **ASTA certified** to meet adequately all the duties specified.

The end plates shall be removable for drilling for conduit or cable entry and shall be fitted with additional distance pieces where necessary. Switchgear boards shall be fixed to the wall/floor by Rawl bolts or other approved fixings.

No building alteration shall be allowed when moving the switchboard into position, the switchboard being supplied in sections to be built in position, if so required.

Switchgear shall be delivered to site when required to suit the progress of the works. Care shall be taken to preserve the manufacturer's paint finish. Any refurbishing etc. shall be carried out, using paint obtained from the switchboard manufacturer, to the original standard of finish.

All fuses in switchgear shall be HRC fuses sized for the fused-switch units or switch-fuses etc., in which they are incorporated. They shall be ASTA certified for compliance with BS 88, Category of Duty 440 A.C 5 Class 01 and in all cases fuse

links shall be selected to provide circuits discrimination.

9. CONTROL PANELS AND CUBICLES

The details specified shall apply as far as fused switches, bus-bars and rating etc are concerned. The panels shall be constructed from rolled steel channel minimum size 60 mm x 30 mm deep x 5 mm or equivalent angle section clad with sheet steel of 3 mm gauge. 2 mm gauge may be used for covers and doors of not more than 1 m square.

Terminals shall be of the "Klippon" standards rail-mounted feed-through type or approved equal. All terminals shall be identified by means of numbered or lettered marking tags, which shall be identical to the number of letters applied to the cables. Cables shall be identified as terminations by means of cable markers as manufactured by "Klippon" or approved equal. 25% spare terminals capacity within wiring duct shall be provided. All components motors, starters, relays, timbers, etc. shall be labelled showing their reference and function and these shall relate to the panels' schematic wiring diagram provided with the "As-built" drawing and manuals.

All control panels shall be fitted with multi-pole isolating switches through which all electricity supplies shall pass. The door(s) of the control panel shall not open unless the isolating switch is in the "off" position. A facility to lock the control panel isolating switch in the "off" position shall be included.

10. DISTRIBUTION BOARDS

a) General

All distribution boards, unless stated otherwise, shall be miniature Circuit Breaker Distribution Boards and shall be of surface or flush type, as specified or instructed on site. Facilities for local isolation of the distribution boards shall be provided by either a local fused-switch unit or an integral isolating switch, whichever is specified.

Where surface mounted on a flush installation, all conductors shall terminate behind the board in an adequate box. For surface mounting, trunking shall be fixed between the board and ceiling level, or conduits run directly into the board. Adequate earth continuity connection shall be made between the various components.

b) Miniature Circuit Breaker Distribution Boards

MCB distribution boards shall comply with BS. 5486 part 12 'Particular requirements for miniature circuits-breaker boards'. The cases shall be constructed of heavy gauge sheet steel, in such a manner as to afford rigidity and maximum ease of wiring for full size circuit and main cables.

The cover shall be provided with an efficient gasket or alternatively designed with generous overlapping edges to prevent the ingress of dust. Components shall not be manufactured from zinc alloy in conjunction with sheet steel where they are relied upon for earth continuity.

Where the cover is required to be lockable, cylinder type locks shall be provided, having two keys per lock. All locked distribution boards shall be handed to the Engineering Supervisor on completion of the works. The cases shall be provided

with detachable cable/conduit terminating plates, which shall be reversible and interchangeable from top to bottom.

All screws and nuts used in the construction of the case shall be fitted with shakepoof washers and care taken to ensure efficient earth continuity. An external earthing terminal with cable socket shall be fitted.

All MCB banks shall be fitted to frames, with robust locking plates provided to ensure the frames rigidly in the fixed position.

The banks shall be so spaced to obviate the necessity for insulating barriers, but protection shall be provided by means of insulating shields to prevent accidental contact with main bus-bars and incoming mains cable.

Bus-bars shall be of high conductivity, hard drawn copper conductors connected to the MCB contacts by means of spring washered screws or bolts, unless plug-in type MCB's are specified.

Neutral bars shall be similar to the main bus-bars and shall have two screw terminals per way for rating of 30 amps or over. Single screw connections will be allowed for capacities up to 30 amps. The neutral bars shall have one terminal for each MCB within the board, and connection of conductors to the neutral bar shall be in the same order as the MCB ways.

Where installations are carried out with cables with a protective conductor, all distribution boards shall also contain internal earthing bars similar to the neutral bars detailed above, with one terminal for each MCB within the board. Earthing conductors shall be connected in the manner described for neutral conductors to neutral bars.

Where a main integral isolating switch is provided in an MCB case it shall be arranged to isolate incoming live and neutral main cables from the bus-bars. The isolator switch shall be rated at 500 volts and of the quick make-and break pattern with positive action. Incoming and outgoing terminals shall be fitted with two clamping screws and outgoing conductors to the bus-bars shall be high conductivity hard drawn copper rods.

Isolating switches shall comply with IEE Regulations, Part 537, and shall be capable of carrying their full rated load continuously and shall 'make' or 'break' their full rated load without undue burning of the contacts.

c) Miniature Circuit Breakers (MCB's)

All MCB's shall have movements which are positive in both directions (make and break) so as to enable units to be closed decisively by the operation of the handle, and to be able to assume the 'OFF' position unless the contacts are definitely separated, to safeguard against false indications.

The hand shall be trip free to make it impossible for the operator to hold the breaker in the closed position under faulty conditions. The operating mechanism and arc chambers of the circuit breaker shall be separated from the terminals and fixing screws.

Terminal identification shall be readily discernable as viewed from the front of the board with automatic and clear signal identification for both 'ON' and 'OFF' position.

All terminals shall be readily accessible from the front and each wiring chamber

shall be closed by a screw fixed cover which protects the terminals and prevents dust from settling on the insulation.

Where the full capacity of a distribution board is not required the electrical Contractor shall fix blanking plates in the vacant MCB housings. All MCB's shall be rated at 500 volts minimum, and comply with BS 3871 "Miniature and moulded case circuits breakers" and 4752 part 1, "Circuit breakers".

11. LABELLING AND ENGRAVING

a) Labelling

All fused-switch units, switch fuses, switches, bus-bar chambers, distribution boards etc., and all items of equipment on the main panel shall be identified in accordance with **Section 514 of the IEE Regulations** and shall have securely fitted externally a white 'Traffolyte', 'Formica' or other approved plastic laminate label engraved with 6 mm high black letters detailing the function of the equipment and any reference number.

Red, Yellow, Blue, Black & Green plastic laminate phase discs shall be fixed inside all switchgear and distribution boards to indicate to which phase of the supply the various circuits are connected. The colour rings shall comply with **Part 524 of the IEE Regulations.**

Each TP or TP & N item of switchgear shall have fitted on the cover a white plastic laminate label having **'CAUTION' - 415 VOLTS'** engraved in 10 mm high red lettering.

b) Engraving

The electrical Contractor shall allow for engraving of all switched fused spurs, double pole switch accessories and any other accessories which are customarily required.

The accessory plate shall be engraved in either black or red, capital letters 5 mm high, detailing and appliance or equipment being supplied by the accessory e.g., 'WATER PUMP' etc.

12. MOUNTING HEIGHTS

The approximate position of main switchgear, control equipment distribution boards, fittings and accessories shall be as indicated on the Drawings. Actual positions shall be determined on site by the Engineer.

Unless otherwise stated on the relevant drawings or directed by the Engineer the following mounting heights of all accessories above finished floor level shall be adhered to: -

i. Lighting Switches - **1400 mm to center**

ii. Socket Outlet and Spur - **300 mm to center (or 150 mm above work top level to center)**

iii. Distribution Boards - **1800 mm to lower edges.**

All groups of accessories shall be in line either vertically or horizontally or as specified.

13. LUMINAIRES

All Luminaires shall be of the manufacture, size and type specified and shall comply in all respects to BS 4533 **"Electric Luminaires".**

The electrical Contractor shall supply and install all luminaires including lamps, lamp holders, control gear, capacitors, glassware, diffusers or other attachments, heat resistant internal cables, fuses and terminals and all necessary suspension gear. In case where Luminaires are supplied by the client the Contractor shall deliver to site, store, install, commission and set to work.

Unless otherwise stated, indoor luminaires shall be suitable for **Class 1 normal indoor environments**, giving a degree of protection against ingress of moisture or dust.

All Luminaires shall be assembled and installed in accordance with the respective manufacturer's instructions/recommendations, in the position and mounting heights specified.

Luminaires shall not be installed under dirty and hazardous site conditions, and any damage or deterioration to luminaires installed under these conditions shall be made good by the electrical Contractor.

The Luminaires shall be cleaned free of dust and dirt after completion of the installation. Where dirt, dust, corrosion or other conditions cause imperfections in the luminaires, they shall be replaced.

Luminaires, diffusers, attachments or glassware etc., shall be properly stored to final erection, in such a manner as to avoid damage of any kind.

Luminaires fixings shall generally be suitable for direct connection to conduit boxes or as otherwise specified. Luminaires not provided with suitable BESA box shall be modified as necessary.

Where a flexible cord supports, or partly supports, a luminaire the maximum mass supported by the cord shall not exceed the values set out in **IEE Regulations 522.8**

The minimum cross-section area flexible cord to the employed shall be 0.75mm2.

Specified attention shall be given to Chapter 52 of the IEE Regulations, particularly Regulation 521-5 and 521-6, Appendices 1 to 15.

Pendant tungsten luminaires shall be fitted with heat resistant flexible cord complying with BS 6500, capable of continuous operation with a conductor temperature of 150 degrees C. The cable shall be of the circular multi-core type, finished white, if not otherwise specified.

Ceiling mounted tungsten luminaires; spotlights and other luminaires of the category 'hot' luminaires shall be wired internally with cables suitable for continuous operation at 185-degree C. Where cable tails are provided they shall be of the heat resistant type capable of operation at 185-degree C.

Exterior luminaires, fixed to the walls of buildings etc., shall be wired such that final circuit wiring terminates within the luminaire. All final circuit cables so installed shall be provided with heat resistant slaves from the connection point within the luminaire for a distance of 300 mm.

All fluorescent and other discharge luminaires shall be provided with an integral fused connector block. The rating of the fuse shall be in accordance with the manufacturer's instructions to protect the internal wiring of the luminaire and to provide discrimination between final circuit protection and luminaire protection.

All recessed and semi-recessed luminaires in ceilings shall be connected by three core 0.75 mm2 high temperature flexible cord from the terminals of the luminaires to a plug-in ceiling rose fixed and connected to an accessible outlet box in the wiring system, within the suspended ceiling immediately above the luminaire. The ceiling rose shall be accessible via the opening provided in the ceiling.

The electrical Contractor shall ensure that the methods of suspension for luminaires are electrically and mechanically sound.

Luminaires suspended by means of tubes shall be fitted to ball joints allowing a swing of at least 20 degrees all round. Reliable earthing between the fixed and moving parts shall be provided by means of a flexible braided copper tape.

Fluorescent luminaires shall be provided with a minimum of two fixings, except in the case of recessed modular luminaires or surface-mounted luminaires exceeding 300 mm in width, where four number fixings (one from each corner) shall be provided by means of conduit drops or threaded rods.

Normally visible luminaires support shall be conduit. All fluorescent luminaires shall be solidly mounted with all assembly nuts, bolts and accessories made tight to prevent vibrations and noise. Anti-vibration packing shall be fitted where necessary. Luminaires mounted direct to trunking shall be fixed by means of the manufacturer's recommended fixing assemblies.

Unless stated otherwise, all luminaire supports shall be fixed to the building primary structure. Luminaires shall not be supported from suspended ceiling unless otherwise specified. The electrical Contractor shall be responsible for mounting and fixing arrangements.

Break joint rings of approved colour shall be provided for all suspended luminaires and fluorescent batten luminaires where the batten is of insufficient width to cover completely the conduit box and its associated clearance hole in the ceiling.

The metalwork of all luminaires shall be effectively bonded to the earthing system in accordance with Chapter 54 of the IEE Regulations.

Care shall be taken to ensure that the internal wiring of luminaires and the cables of any fixed wiring shall not be in contact with high temperature areas in luminaires.

Lighting track shall be of the type, size, finish, number of circuits and manufacture specified and shall comply with the requirements of the relevant section of **BS.4533.** The positions of luminaires as shown on the Drawings are approximate only and exact position shall be determined after reference to the **Engineering supervisor.**

14. LIGHTING SWITCHES

Lighting switches shall be of the type, size and manufacture as specified.

Wall and ceiling switches shall comply with **BS 3676.** Wall and ceiling switches controlling A.C lighting circuits shall be rated 6 or 10 amps and be of the slow-break

quick-make, type unless stated otherwise.

Where several switches on one phase are shown at one position, a ganged box shall be used.

Where switches at any location are connected to different phases, purpose-make phase barrier switches shall be installed. The phases shall be separated by means of rigidly fixed barriers and the cable for each phase shall be confined to the area enclosed by the barriers for that phase.

Switches connected to a particular phase shall have separate cover or covers fitted over each phase. The covers shall be engraved, "CAUTION 415 VOLTS".

The switch plate of the specified finish shall be fitted over phase cover to render the switch unit indistinguishable from the switches that are not phase barrier switches.

Alternatively, each gang shall have its own piping and box for each phase, physically separated from other phases with similar arrangements.

For flush position on a plastered or equivalent finish wall, the switches shall have overlapping plates.

In any places where the finish is fair-faced brickwork, the wiring shall be installed on the back of the wall and make a back entry into the accessories. Each switch in these areas shall be neatly recessed and shall incorporate an overlapping plate.

For surface-mounted positions and such Plant Rooms, Electrical Switch room etc., employing a surface-mounted system or wiring, switches shall be surface-mounted, having metal front plates of an aluminium finish, mounted in matching metal boxes.

15. SOCKET OUTLETS

All socket outlets and plugs shall be supplied and installed in accordance with the manufacture, type, sizes and finish specified.

All round pin 2A, 5A, 15A, and 30A socket outlets shall comply with the requirements of **BS 546.**

All sockets outlets shall be switched and complete with safety shutters, unless otherwise specified.

All switched sockets outlets shall be complete with steel boxes of the same manufacture, complete with earth terminal.

Assemblies shall comply fully with the requirements of the **IEE Regulations concerning the bonding** of protective conductor terminals and each such terminal shall be connected by a conductor, having a minimum cross-sectional area of 2.5 mm2, to a permanent earthing terminal incorporated in the associated box providing an effective, solid connection to the earth continuity conductor of the installation.

Where the assembly does not provide a reliable electrical contact between the cover plate and box with effective connection of metal operating bars and toggles, then an insulated earthing lead shall be provided, solidly connected to the metal plate and operating bar or toggle and terminating at the fixed earthing terminal incorporated in the associated box. 13 amp sockets will generally be installed using ring circuits in accordance with **15 of the IEE Regulations.**

All plugs shall be of moulded rubber or other resilient material complying with **BS 1363 or BS 546**. The plug shall have internal cord grip. 13 amp plugs shall be fitted with cartridge fuse links to **BS 1362**. The fuse rating shall be selected to give protection to the flexible cord or cable connected.

All fuses installed within 13 Amp plug top, fused spurs, clock connections etc., shall be cartridge fuse links rated at 240 volts, **ASTA certified for compliance with BS 1362** 'General purpose fuse links for domestic and similar purposes', or **BS 464** 'Cartridge fuse links (rated at up to 5 amperes) for AC and DC service', or **BS 2950** 'Cartridge fuse-link for telecommunications and light electrical apparatus'.

All equipment which is locally fused shall have fitted fuses with characteristics which are recommended by the manufacturer of the equipment.

If any appliance or equipment suffers due to incorrect fusing of the appliances, such appliances or equipment shall be repaired or replaced at the electrical Contractor's cost, to the satisfaction of the Engineer.

16. INSPECTION AND TESTING

A visual inspection shall be made in accordance with IEE Regulations Chapter 61. References shall be made to Appendix 6 of the IEE Regulations, which is a checklist for initial inspection of installations.

The electrical installation shall be inspected and tested by the electrical Contractor in accordance with Chapter 61 of the IEE Regulations.

Where any part of installation is to be concealed within a building, fabric tests shall be made to ensure that the installation is satisfactory prior to concealment.

Upon completion of the works the whole installation shall be subjected to the tests detailed hereafter and every defect shall be noted, corrected and brought to the notice of the Engineer.

All tests shall be witnessed by the Engineer to his full satisfaction and he shall be given at least one week's notice in writing of the proposed tests.

All labour and test instruments shall be provided by the electrical Contractor and the instruments shall be correctly calibrated and certified for the limits of accuracy required and shall be operated by a competent person. If, in the Engineer's opinion, a particular instrument is not suitable, then an acceptable alternative shall be provided. The Engineer shall be at liberty to demand the use of any testing instrument or apparatus that he may reasonably consider to be necessary in the execution of the testing.

In the event of the installation failing to pass the test, the Engineer has the full authority of the Employer to deduct from the Contract Price all reasonable expenses incurred, due to him being required to attend a repetition of the test.

The following items, where relevant, shall be tested in the sequence indicated. Standard methods of testing, in respect of some of the following regulations of this section, are given in Appendix 6 of the IEE Regulations.

i. Continuity of ring final circuit conductors.
ii. Continuity of protective conductors, including main supplementary equipotential bonding.
iii. Earth electrode resistance.

iv. Insulation resistance.
v. Insulation of site-built assemblies.
vi. Protection of barriers or enclosures provided during erection.
vii. Insulation of non-conducting floors and walls.
viii. Polarity.
ix. Earth fault loop impedance.
x. Operation of residual current devices and fault voltage operated protected devices.

Upon completion of all tests and commissioning, two copies of detailed certificates shall be provided by the electrical Contractor to show that the equipment, materials, installation etc., have been tested and commissioned. One copy of each, duly completed and signed shall be submitted to the Engineer within 15 days of the results being obtained. The second copy of the certificates shall be retained to be included with operator and maintenance manuals. The results of the test and details of completion for the electrical test shall be detailed on the Test and Completion Certificates respectively; issued by the National Inspection council for Electrical Installation Contracting or other approved authority.

17. SUPPLY AND DISTRIBUTION

a) Metering

The K.P&L.Co. (Power Utility Company) Meter is to be located in the meter board

HT Meter from Power Utility Provider shall be as specified in the Utility provider requirements

All switch fuses, fuse switches, MCBs, MCCB's including meters shall be of reputable manufacture meeting current British standards as stipulated in the general specifications. Any other quality that does not strictly meet these standards shall not be acceptable.

b) Supply

The premise is to be fed from the HV / LV switchboard. This feeds power panels, rising mains, distribution boards and consumer units located at various load centers.

These boards feed various sub-mains boards, which in turn feed the final sub-circuits

18. LIGHTING AND SMALL POWER INSTALLATIONS

a) Installation system

With the exception of where otherwise noted on the drawings, the installation shall throughout be carried out in PVC or XLPE cables of not less than 1.5mm^2 copper drawn in high grade PVC conduit.

b) Lighting control system accessories

The switching arrangements for the indoor lighting shall be as indicated on the drawings.

Types of Manufacturer for accessories and fixed apparatus to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be as MK, ABB,, Clipsal, Philips or Legrand but shall be subject to the approval of the Engineer.

c) Connections to fixed appliances

The Contractor shall supply and interconnect flexible cords between spur units'/outlet boxes and the appliances where flex connections are needed.

All connections shall be made by white heat-resisting PVC / XLPE flexible cords having fuse rating in accordance with the respective circuits subjected to a minimum of 1.5mm^2.

d) Mounting heights and locations

All mountings heights stated shall mean the heights from finished floor level to underside of the accessory.

i. Lighting control switches - 1400mm above floor level and 100mm away from architrave. If mounted in a column they shall be located in the center.

ii. Socket Outlets - 300mm above finished floor except for areas that are otherwise stated on the drawings.

iii. Connection Units and Outlets - Connection units having cord outlets shall be located as to limit the length of the flex cord to approx. 600mm and be located slightly higher than the inlet on the appliances. The same applies to outlet boxes.

iv. Conduit Boxes (General) - Where one fitting is shown in a room the box shall be in the centre (unless otherwise stated). Where two or more fittings are to be installed, they shall be half of the between two fittings. Where one row of fittings is to be installed they shall be located in the center. Where installed between beams they shall be in between two beams. All boxes shall be with covers.

e) Wall and ceiling finishing's

The Contractor is to obtain information regarding ceiling claddings before the installation is commenced as he will be held responsible if the conduit boxes as well as for switches and socket outlets, telephone etc are not installed at the right depth.

f) Lighting fittings

The Contractor shall supply, deliver to site, install and commission all the fittings.

Types of Manufacturer for light fittings and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be as Thorn & Philips but shall be subject to the approval of the Engineer.

Where appliance's fittings shall be supplied complete with bulbs or tubes, the tubes shall be as Thorn or Osram Manufacturers. The bulbs shall also be Phillips, Osram or GE makes. Equivalent makes may be substituted but shall be subject to the approval of the Engineer.

g) Fixing and location

Details of fixing and location of various fittings are as shown on relevant drawings.

Fluorescent and incandescent fittings shall, in addition to being fixed to the conduit boxes, also be fixed by means of PVC covered raw plugs (no wooden plugs) at the fixing centres.

h) Outdoor Installations

A rubber gasket shall be fitted on the conduit boxes for the outdoor fittings in order to provide a waterproof seal.

All switch panels shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be as MK, ABB,, Clipsal, Philips or Legrand but shall be subject to the approval of the Engineer.

Each switch panel shall be fed from a particular phase as NOT more than one shall be allowed inside one panel. Separate conduits shall be installed to each panel.

i) Power installations

The Contractor shall include for all installations shown on the drawings and specified in the bills of quantities.

The Contractor shall satisfy himself that there is a continuous conduit, trunking and/or duct system to facilitate installation of the entire power installation and shall be held responsible where continuity does not exist.

j) Installation system

The installation system for the indoor installation shall be carried out in concealed PVC conduits, PVC ducts and surface mounting trunking. The size of the cables shall not be less than 2.5mm^2 for ring main circuits.

19. FIRE ALARM INSTALLATIONS (Where Applicable)

The installation for the above shall be carried out using fire tuff 1.5mm^2 copper cables drawn in high impact grade PVC conduits.

The Contractor shall ensure a continuous link-up between individual break-glass call units, automated devices, bells and the panels. Also the link between individual occupancies and the main panel that shall be located in the block shall be ensured.

The fire alarm system must be intelligent type and fully addressable.

20. STRUCTURED CABLING, SECURITY, CCTV, ACCESS CONTROL & BMS INSTALLATIONS (Where Applicable)

a) Installation system

In the bid for electrical installation, supports for all cables in the structured cabling, security, CCTV, Access Control & BMS systems shall be included.

The electrical bidder shall include for trunking, conduits etc. to ensure a continuous supply system from the telephone / ICT room / Server room to any individual outlet.

The ICT and security contractors shall do all cabling and the backbone superhighway along the vertical building riser.

The same shall have appropriate plug on points for the occupants on each floor.

Holes in structures shall be provided by the main contractor.

The conduits shall at each point terminate in deep switch-boxes as specified for

lighting control switches.

b) Mounting heights and locations

Mounting heights shall be as for socket outlets.

c) Blank-off plates

All Blank off plates shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be as MK, ABB,, Clipsal, Philips or Legrand but shall be subject to the approval of the Engineer.

Blank plates shall be flat type and shall match wall colour.

21. EXCLUSIONS

Exclusions (This clause DOES NOT apply for this contract)

Excluded from this Sub-Contract is;

i. Control panels for motor-starters and internal wiring between control-panels, motors, thermostats etc.

ii. Supply and installation, including wiring, of alarm security and equipment. This excludes conduits, draw-wires, boxes, holes in trunking system and blank-off plates, which forms part of this Sub-Contract.

iii. All telephone system and equipment. This excludes conduits, draw-wires, boxes, holes in trunking systems and blank-off plates which forms part of this contract.

22. DEFINITIONS & INTEPRATION OF ELECTRICAL TERMS

The terms, phrases and abbreviations shall be deemed to have the following meanings wherever used hereinafter and in all contract documents.

i. Lighting Point:

"Install a lighting point complete with concealed diameter 20mm Ø H.G. PVC conduit, conduit couplers, conduit bends, Patress box, wiring in 3x1.5mm2 PVC / XLPE S/C CU cables and all accessories, complete from the light point to the consumer to the light switch point but excluding the light switch".

ii. Socket Outlet:

"Install 13A power outlet comprising Trunking/concealed diameter 20mm Ø H.G. PVC conduit, conduit couplers, conduit bends, box, ring mains wiring in 3x2.5mm2 PVC / XLPE S/C CU cables and all accessories including 13A switched Socket plate. All socket outlets must have safely shutters on both live and neutral.

iii. Telephone Point:

"Install telephone cord outlet point complete with Trunking/ concealed diameter 25mm Ø H.G.PVC conduit box, and draw wire. "

All Telephone outlets must have Continuous links interlinking all the points.

iv. 20A DP Outlet:

"Install outlet for 20A DP switch comprising Trunking/ of concealed diameter 25mmØ H.G PVC conduit, wiring in 3x2.5mm2 PVC / XLPE S/C CU cables,box and 20A DP switch plate with neon light and all accessories".

v. Security Alarm Call Point.

"Install outlet for security alarm call point comprising Trunking/concealed diameter 20mm Ø HG PVC conduit, draw wire and box including blanking plate.

All call points must be interconnected.

vi. Consumer Unit:

"Supply and install SP/N power consumers' unit complete with SP/N Integral isolator".

vii. Distribution Board:

"Supply and install TP/N power distribution board, complete with TP/N integral isolator."

viii. Earthing:

Protective multiple earthing to Kenya Power and Lighting Co. (K. P. & L. Co.) Standards comprising 1200mm deep-driven pure electrolytic copper earth electrode, electrode clamps, yellow/green earth lead, earth pit complete with cover and all accessories".

ix. Labelling:

"Comprehensive, concise and instructive permanent labelling of all the sub-circuits, complete with identification of the sizes of all the sub-circuit cables, permanent traffolyte identification of the board such as "DB A" and identification of the sizes of the sub-mains and their origin e.g. "Board A: Supply, 4.x16mm2; SOURCE, DB1"

x. Blanking Plates:

"Supply and install blanking plates in all the spare ways."

xi. Switched Spur Outlet:

"Install 13A fused, switched spur outlets with neon light and 5A Integral fuse complete with Concealed diameter 20mm Ø H.G PVC Conduit, box, wiring in 3x2.5mm2 wiring for power supply and all accessories ".

xii. Trunking:

"Supply and install 250x50mm white stove-enamelled 3-compartment metal trunking (to details shown) complete with bends, end plates cover, screws etc and all accessories.

xiii. Cooker outlet:

"Install 45A DP cooker control unit, complete with concealed box, concealed diameter 25mm Ø H.G.PVC conduit, box, wiring in 3x6.0mm2 PVC / XLPE S/C CU cables and all accessories including 45A DP cooker control unit, with an integral socket fitted with neon lights, and cooker connector unit.

xiv. 32A TP outlet:

"Install outlet for 32A TP switch comprising of concealed diameter 32mmØ HG PVC

conduit, wiring in 4 x 6.0+6.0mm2 etc. PVC / XLPE S/C CU cables, box, 32A TP switch plate with neon light and all accessories.

xv.Specifications

All light fittings and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be as Thorn & Philips but shall be subject to the approval of the Engineer.

All Sockets, telephone outlets, TV outlets, switches, spur outlets, fixed apparatus and all other related accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be as MK, ABB,, Clipsal, Philips or Legrand but shall be subject to the approval of the Engineer.

All Isolators and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be Hager but shall be subject to the approval of the Engineer.

All Distribution boards / Consumer units and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be ABB but shall be subject to the approval of the Engineer.

All Conduits and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be Metro but shall be subject to the approval of the Engineer.

All conduits/ducts must be heavy gauge. Where steel pipes are specified, they must be minimum of **Class B** in strength.

xvi.Contract

The electrical contract shall be for supplying, delivering, fixing / installing, testing, commissioning and setting to work to the full satisfaction of the Engineer and the Contractor's price must include all costs for the entire process.

The installation shall be carried out strictly in accordance with the provision of the **17th Edition of Wiring regulations as published by the Institution Electrical Engineers, Great Britain**, the most current relevant **standards issued by the Kenya Bureau of Standards**, and with strict adherence to the safety requirements and **by-laws of the Kenya Power and Lighting Co. Ltd.**

All equipment and accessories supplied for the contract must be certified by the Kenya Bureau of Standards and a certificate issued upon request.

The Contractor shall ensure that the highest standards of workmanship and highest quality materials are used at all times. Inferior workmanship and low quality materials shall be rejected and replaced at the Contractors own cost.

Other than ceiling fixture accessories, light fittings etc, all the other mounting heights will be re-confirmed with the Engineer on site.

All light fittings must be completed with appropriate lamp, bulb, tube, starter, control gear, etc as applicable.

FIRE ALARM PARTICULAR SPECIFICATIONS

PARTICULAR SPECIFICATIONS – FIRE ALARM

The items described in the schedules to be priced are to meet the under listed minimum specifications and of the stated model or equal and approved.

STANDARDS

The Fire alarm system should follow the following standards:

- EN54:2 1998
- EN54:4 1998
- EN50130-4

BMS CONNECTION

The fire alarm system should be BMS compatible

The BMS protocol to be used is to be "BACNET IP protocol"

FIRE ALARM CABLING

The fire alarm cabling should follow the following guidelines:

i.) Fire alarm cables shall be fireproof cables as FIRETEC or Prysmian FP200

ii.) Enhanced fire resistance cables should be used where there is a requirement to ensure cable integrity over a longer period of time e.g. connection between sub-panels.

iii.) All Fire alarm devices shall be wired in 2 Core 1.5mm^2 Copper cables & shall be identified by colour

iv.) Conductors shall consist of plain annealed copper and a tinned annealed copper circuit protective conductor.

v.) The insulation shall be of a robust cross-linked thermosetting type complying with BS EN 50363-5 type EI5. The insulation shall be RED in color

vi.) The cables shall be rated at 300/500V

vii.) Fire alarm cables shall be segregated from the cables of other systems

viii.) Fire alarm cables shall be clearly marked,

ix.) Fire alarm cables Firs shall be routed through parts of the building that provide minimum risk

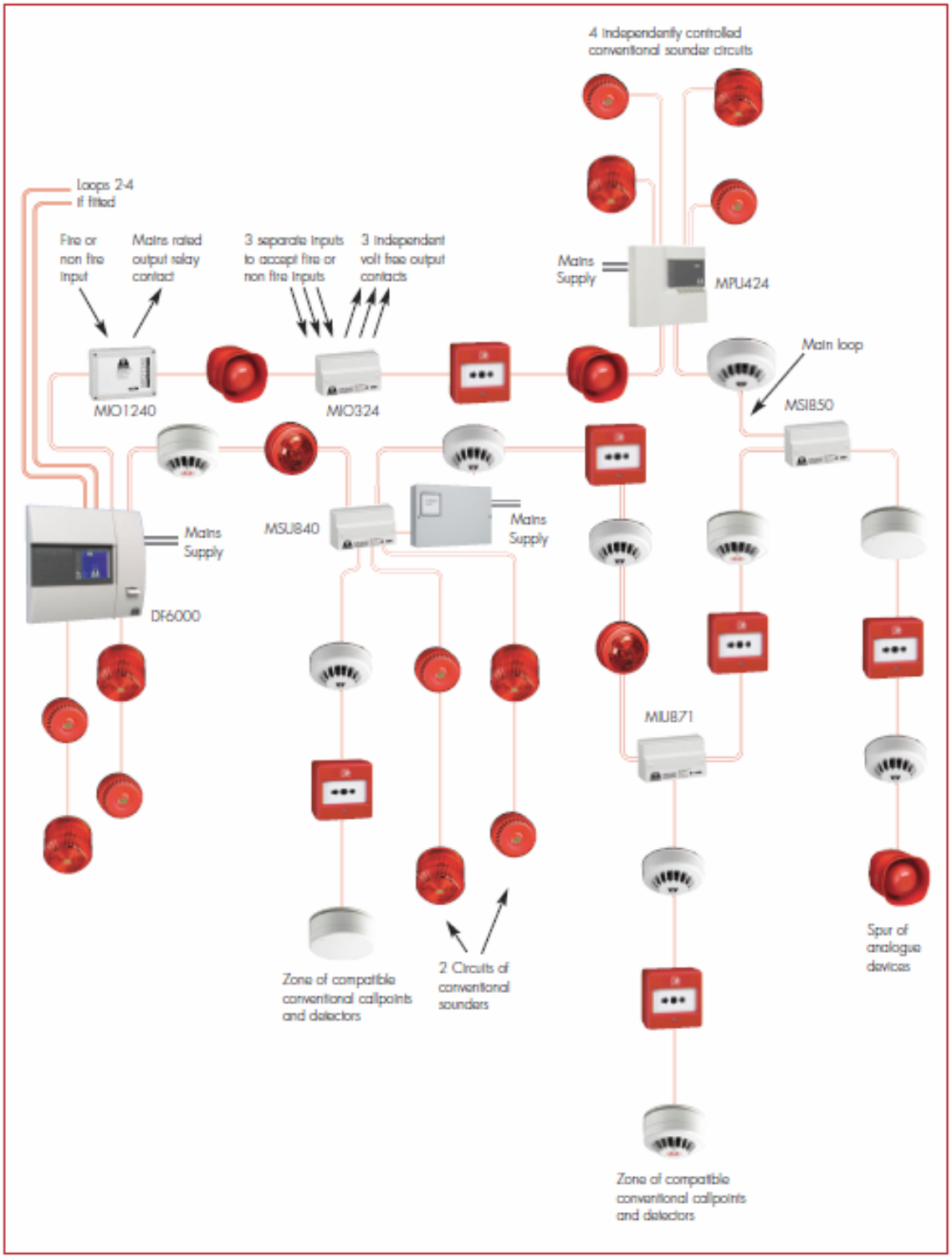
x.) Cables should meet the performance requirements of BS6387 Category CWZ, EN 50200 PH30 & PH60, BS EN 50200 Annex E, BS EN 60332-1-2, BS EN 60332-3-24, BS EN 61034-2 and produce less than 0.5% acidic gases when tested in accordance with BS EN 50267-2-1.

The sheath should comply with the BS7655 Type LTS3 standard.

The insulation shall comply with BS EN 50363-5 type EI5.

xi.) The cable shall also meet the environmental standards ISO 9001 and ISO 14001.

EQUIPMENT ADDRESSABLE FIRE ALARM ARCHITECTURE



Kindly, **tick (√)** where it meets and **cross (X)** where it does not meet specifications on the appropriate tables below.

FIRE ALARM PANEL

The Fire Alarm Panel should meet the following specifications as a minimum.

FIRE ALARM PANEL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Color	Panel should be Light grey in color unless otherwise stated	
Installation	Panel Should be recessed to flush with the wall unless otherwise stated	
Operation	It should operate as a standalone or part of a networked system	
Programming options	Should have powerful programming options to allow configuration over whether messages from specific panels are transmitted around the network or remain local	
Standards	EN54:2 1998 EN54:4 1998 EN50130-4	
COVERS		
Type	Panel should have a hinged front door to enable access to all internal components and wiring	
Access	All hinged covers on the panel should be lockable	
Locking Mechanism	Panel door should only be accessible through the use of a special key (To be supplied with Panel)	
DISPLAY		
Screen	Panel should come with a Touch screen with minimum dimensions as 120mm x 90mm which will provide comprehensive user information and also act as a multifunctional keypad.	
Pushbuttons	Additional dedicated pushbuttons should be allowed if required.	
Indicators	Panel should incorporate zone indication LED's to show status and spread of a fire to even a user who is familiar with the operation of the system	
PRINTER		
Type	Panel should come with an inbuilt printer.	
Accessibility	Printer should be in a lockable access area and change of paper should be able to be done by even non skilled personnel without exposure to any live components.	
Operation	Printer should be able to be set to print on demand or to automatically print all system events as they occur.	

FIRE ALARM PANEL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (✓ or X)
ELECTRICAL / POWER		
System	Panel should have integral power supplies and batteries which should be supplied with the panel as a standard	
Mains	230V AC +10% / -15%	
Battery	2 x 4 A/H	
Nominal Operating Voltage	24V	
DETECTION CAPACITY		
Loops	The number of loops should be able to accommodate all devices in the particular system as mentioned in the bills of quantities	
Loop Addresses	Up to 150 Addresses per loop	
Standard	EN54	
Networking	Panel should be able to be networked to accommodate more devices	
ALARM CAPACITY		
Loop Devices	Up to 80 loop powered sounders, beacons or interfaces per loop	
Stages	3 stages of cause and effect programming per output device	
Extension	Additional sounders can be connected via additional sounder control circuits	
Sounders power	1.5A of Panel connected sounders	
SYSTEM FUNCTIONALITY		
Modes	Panel should have 3 modes of operation: • Normal Mode • User maintenance • Engineer mode	
Access	User maintenance & Engineer mode should only be accessed by entering relevant pass codes Maintenance mode allows access to system test functions, enable and disable menus, view analogue level menus and functions such as evacuate, silence alarms and reset Engineer mode allows alteration of system configuration and programming of site specific data such as device text and sounder programming Engineer mode also allows adding and removal of devices and alteration of existing text	
Expansion	Panel should ensure simplicity of future expansion. If an additional device is added after the system has been programmed, the panel should allocate the next available address, It should not alter any of the existing address number allocation thus enabling simple updating of 'as fitted' drawings etc. Similarly if a device is removed, the relevant address should be saved as a spare address for future use, the addresses of the remaining devices are not affected	
Addressing	All devices should be soft addressed during commissioning however once allocated, addresses are locked until manually altered thus enabling simple system additions and deletions without affecting other addresses	
Short Circuit	In event of an external short circuit occurring, short circuit isolators on output of devices nearest to each side of the short circuit open thus isolating the short circuit	

FIRE ALARM PANEL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Communication	Panel should drive communication from both ends of the loop thus maintaining full communication with all devices	
INTERFACE OPTIONS		
Outputs	• Monitored output to fire routing equipment • Monitored output to fire protection equipment • Monitored output to fault monitoring equipment	
Inputs	Multiple Programmable remote inputs (up to 180 per panel) can be set for: • Override of day night mode setting • Photo-thermal detectors go to thermal only • Rate of rise detectors go to fixed high temperature mode • High temperature heat detectors go to rate of rise mode • Disablement of pre assigned group of addresses	
Others	• Class change • Non latching zone input • Evacuate • Zone monitor units can be used to connect zones of suitable conventional detectors or loop powered beam detectors. • Sounder circuit controllers can be used to provide additional conventional sounder circuits without wiring back to main panel • Mains rated input/output unit available • 3 way 24V rated input/output unit available • Spur isolator available to allow spurs of analogue addressable devices • Shop unit interface allows the connection of a conventional detection zone along with a power supply and 2 or more conventional sounder circuits, ideal for linking small self-contained units onto a main addressable panel • 4 or more Conventional sounder circuits provided as standard	
ENVIROMENTAL		
Temp. range	IP30. -5°C to +40°C. Humidity 75% max (non-condensing)	

REPEATER PANEL

The Repeater Panel should meet the following specifications as a minimum.

REPEATER PANEL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Color	Panel should be Light grey in color unless otherwise stated	
Installation	Panel Should be recessed to flush with the wall unless otherwise stated	
Compatibility	Should be compatible with the main fire alarm panel	
Operation	To be connected to either the detection loop of a single panel or to a network as part of a networked system	
Standards	EN54:2 1998 EN54:4 1998 EN50130-4	
COVERS		
Type	Panel should have a hinged front door to enable access to all internal components and wiring	
Access	All hinged covers on the panel should be lockable	
Locking Mechanism	Panel door should only be accessible through the use of a special key (To be supplied with Panel)	
DISPLAY		
Screen	2 Line 40 Character backlit LCD	
Pushbuttons	Additional dedicated pushbuttons should be allowed if required.	
ELECTRICAL / POWER		
System	Panel should have integral power supplies and batteries which should be supplied with the panel as a standard	
Mains	230V AC +10% / -15%	
Battery	3.2A/H	
Standby	24 Hours + 30 Minutes alarm	
SYSTEM FUNCTIONALITY		
Modes	Panel should have 3 modes of operation: • Normal Mode • Supervisor • Engineer mode	
Access	User maintenance & Engineer mode should only be accessed by entering relevant pass codes Supervisor mode allows silence, evacuate and reset commands to be sent to host panel (loop connected) or to network (network connected)	

REPEATER PANEL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (✓ or X)
	Engineer mode enables password to be changed if required and allows access to text download menu	
Networking	When connected to network, all text is transmitted via network, changes to other network panels update automatically When connected to a detector loop, text for host is downloaded to repeater and updated manually as required	
Indication	Zonal fire and fault indication is by means of 2 line LCD display	
ENVIROMENTAL		
Temp. range	IP30. -5˚C to +40˚C. Humidity 75% max (non-condensing)	

INTERFACE INPUT / OUTPUT UNIT

The Interface input / output unit is to enable simple interfacing between the fire alarm system and other equipment such as Basement mechanical ventilation fans, fire escape pressurization systems or access control systems.

The inputs should be fully monitored for open and short circuits.

The Interface Input/output unit should meet the following specifications as a minimum.

INTERFACE INPUT/OUTPUT UNIT		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (✓ or X)
GENERAL		
Type	Addressable	
Color	White in color unless otherwise stated	
Compatibility	Should be compatible with the main fire alarm panel	
Standards	EN54:2 1998 EN54:4 1998 EN50130-4	
PARTICULAR SPECIFICATIONS		
Inputs	3 minimum	
Outputs	3 minimum	

Output relay rating	24V DC 1A	
IP rating	IP40	
	Should consumes 3 addresses and allows separate location text for each channel of the device	
I / O Operation	All inputs and outputs operate independently of each other	
Inputs Monitoring	Inputs are monitored for open and short circuits	
Outputs programming	Outputs can be programmed for: • Global triggering • Triggering by specific devices or zones • Delay before activation • Pulsing or continuous operation	
Input Functions	Input can be used to • Trigger a fire or fault • Trigger on evacuate • Control day/night mode • Isolate pre assigned group of addresses	
ENVIROMENTAL		
Temp. range	IP30. -5°C to +40°C. Humidity 75% max (non-condensing)	

SHOP INTERFACE UNIT

The Shop Interface Unit is to enable small units with conventional fire detection to be fully integrated with a main analogue addressable fire system. It is ideal for applications such as connecting individual shop units, office suites, etc. into a main building system

The Shop Interface unit should meet the following specifications as a minimum.

SHOP INTERFACE UNIT		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)

GENERAL		
Type	Addressable	
Color	White in color unless otherwise stated	
Compatibility	Should be compatible with the main fire alarm panel	
Standards	EN54:2 1998 EN54:4 1998 EN50130-4	
PARTICULAR SPECIFICATIONS		
Inputs	2 minimum • One suitable for detectors and call points, • One for call points only	
Output relay rating	24V DC 1A max	
Sounder Circuit Rating	400mA per circuit max	
IP rating	IP40	
Input Fault Monitoring	Open and short circuit monitored (Triggering requires specific resistance)	
Power Supply Monitoring	Monitors external volt free fault contact	
Devices	Should Accepts a zone of up to 20 compatible conventional detectors plus an unlimited number of conventional call points	
	Should use end of line monitoring to monitor zone wiring integrity	
	Call points continue to function even if detectors are removed	
	Should have facilities to accept either mixed zone of call points and detectors or for call points and detectors to be connected to separate circuits	
	Facilities for connection of a power supply which is then monitored for fault (P.S.U. requires fault contact)	
	Includes programmable changeover relay which operates in the event of fire	
	Incorporates two conventional sounder circuits powered under fire conditions via external monitored power supply	
ENVIROMENTAL		
Temp. range	IP30. -5°C to +40°C. Humidity 75% max (non-condensing)	

SMOKE DETECTOR (PHOTOELECTRIC)

The Photoelectric Smoke Detector should meet the following specifications as a minimum.

SMOKE DETECTOR (PHOTOELECTRIC)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Color	White in color	
Color Code	The logo on the detector should be colour coded to indicate the exact device type without the need to remove the detector for inspection	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Standards	EN54 pt7:2000 + A1:2002	
View	360º viewable LED design	
IP rating	IP40	
Area coverage	100m²	
System wiring	Min. 1.5mm, 2 core loop or spur via a common mounting base	
Indication	360° visibility light pipe. Visible from any angle (RED LED)	
Status	Different Colors to indicate the different status of detector or LED indicates detector status by setting it to flash to confirm communication with control panel & illuminates continuously under fire conditions	
Mounting	Surface Mount	
Depth	Low profile with maximum depth as 55mm including base	
Addressing Mode	Auto Address	
Operating Voltage	18 to 30V dc	
Max standby Current	220µA	
Max alarm Current	5mA	
ENVIROMENTAL		
Temp. range	-20°C to +60°C. Humidity 95% max (non-condensing)	

HEAT DETECTOR

The Heat Detector should meet the following specifications as a minimum:

HEAT DETECTOR		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
GENERAL		
Type	Addressable	
Functionality	Programmable from the panel to operate in three modes: •Rate of rise •Medium fixed temperature •High fixed temperature	
Color	White in color	
Color Code	The logo on the detector should be color coded to indicate the exact device type without the need to remove the detector for inspection	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Standards	EN54 pt5:2000 + A1:2002	
View	360º viewable LED design	
IP rating	IP40	
Area coverage	100m²	
System wiring	Min. 1.5mm, 2 core loop or spur via a common mounting base	
Indication	360° visibility light pipe. Visible from any angle (RED LED)	
Status	Different Colors to indicate the different status of detector or LED indicates detector status by setting it to flash to confirm communication with control panel & illuminates continuously under fire conditions	
Mounting	Surface Mount	
Depth	Low profile with maximum depth as 55mm including base	
Addressing Mode	Auto Address	
Operating Voltage	18 to 30V dc	
Max standby Current	220µA	
Max alarm Current	5mA	
ENVIROMENTAL		
Temp. range	-20°C to +60°C. Humidity 95% max (non-condensing)	

OPTICAL-HEAT DETECTOR

The Photo Thermal Detector should meet the following specifications as a minimum.

OPTICAL-HEAT DETECTOR		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Functionality	With Optical-Heat detector, sensitivity of smoke detection element varies according to changes in temperature. If temperature is stable then smoke detection sensitivity is reduced to provide enhanced false alarm rejection, if there is a significant rate of rise in temperature, smoke detection sensitivity is increased to maximum to provide earliest possible detection of fast clean burning fires	
Variance	Optical-Heat detector can be set to operate in thermal only mode	
Color	White in color	
Color Code	The logo on the detector should be color coded to indicate the exact device type without the need to remove the detector for inspection	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Standards	EN54 pt5:2000 + A1:2002 EN54 pt7:2000 + A1:2002	
View	360° viewable LED design	
IP rating	IP40	
Area coverage	100m^2	
System wiring	Min. 1.5mm, 2 core loop or spur via a common mounting base	
Indication	360° visibility light pipe. Visible from any angle (RED LED)	
Status	Different Colors to indicate the different status of detector or LED indicates detector status by setting it to flash to confirm communication with control panel & illuminates	

OPTICAL-HEAT DETECTOR		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
	continuously under fire conditions	
Mounting	Surface Mount	
Depth	Low profile with maximum depth as 55mm including base	
Addressing Mode	Auto Address	
Operating Voltage	18 to 30V dc	
Max standby Current	220µA	
Max alarm Current	5mA	
ENVIROMENTAL		
Temp. range	-20°C to +50°C. Humidity 95% max (non-condensing)	

STROBE LIGHT (CEILING MOUNT)

Strobe Light (Ceiling Mount) is a component of a fire alarm system for giving visual warning of fire.

The Strobe Light (Ceiling Mount) should meet the following specifications as a minimum.

STROBE LIGHT (CEILING MOUNT)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Operating Voltage	17 to 32 V dc	
Connections	4-Way Terminal Block	
Operating method	After Initiation of alarm Strobe unit should also trigger to give light flashes at intervals of required frequencies.	
Colour	White	
IP rating	IP54	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Flasher	Flasher Frequency at 1/2 Hz	
Flasher Lamp	LED	
Mounting	Ceiling Mount	
ENVIROMENTAL		
Temp. range	-10°C to +55°C	

MANUAL CALL POINT (BREAK GLASS)

Manual Call point (or Break glass) is a device for the manual instigation of a fire alarm condition.

TYPE 01: HINGED COVER CALL POINT

The Manual Call Point (Break glass) should meet the following specifications as a minimum.

HINGED COVER CALL POINT (BREAK GLASS)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Operating Voltage	24V dc	
Connections	4-Way Terminal Block	
Operating method	Glass element with plastic safety film or resettable plastic element with integral alarm indicator	
Test/reset facility	Unique key	
Colour	Red to EN54-11	
IP rating	IP42	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Indication	Red Status LED	
Status Notification	LED set to blink to indicate normal communication with the panel under normal conditions LED automatically illuminates if call point is triggered	
Mounting	Surface Mount / Recessed	
Depth	Maximum depth as 87mm including base for Surface mount	

HINGED COVER CALL POINT (BREAK GLASS)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
ENVIROMENTAL		
Temp. range	-10°C to +55°C	
ACCESSORIES		
Semi recess Bezel	To be used for all flush call points	
Hinged Clear cover	All break glass should come with protective hinged cover designed to prevent accidental activation of call point. (as in image above)	
Resettable Plastic Element	All Call points should come with a Resettable plastic element which is designed to replace the standard glass element for speed and simplicity of resetting after activation. The Resettable element should contain a high visibility flag which along with the high visibility front mounted LED provides clear indication of when the call point has been triggered	
Replacement Test Key	All Call Points Should be supplied with a test key. This will be used to test the call point as well as to open the call point for installation purposes or to replace the element.	
Replacement Glass Elements	Each Call point should come with a spare glass element to be handed over to the system owner for replacement in future.	

TYPE 02: PULL RESETABLE CALL POINT

The Pull Resettable Manual Call Point (Break glass) should meet the following specifications as a minimum.

PULL RESETTABLE CALL POINT (BREAK GLASS)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Operating Voltage	15.2 to 19.95 V dc	
Connections	4-Way Terminal Block	
Operating method	Initiation of alarm is by first lifting the upper door marked "LIFT THEN PULL HANDLE" then pull the alarm handle Activation is by switching on a toggle switch done by the alarm handle. Resetting of the toggle switch can only be done by accessibility through a Unique Key on the device. No replacement parts needed.	
Test/reset facility	Unique key	
Colour	Red to EN54-11	
IP rating	IP42	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Indication	Status LED's	
Status Notification	Green LED – Flashes when Polled Red LED – Flashes when in Alarm Both Red & Green – Glow steady When in alarm (Standalone)	
Mounting	Surface Mount / Recessed	
Depth	Maximum depth as 87mm including base for Surface mount	
ENVIROMENTAL		
Temp. range	0°C to +49°C	

WALL SOUNDER BEACON & FLASHER UNIT (COMBINED)

Wall Sounder Beacon & Flasher Unit is a component of a fire alarm system for giving both an audible and visual warning of fire.

The Wall Sounder Beacon & Flasher Unit should meet the following specifications as a minimum.

WALL SOUNDER BEACON & FLASHER UNIT (COMBINED)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Addressable	
Operating Voltage	17 to 32 V dc	
Connections	4-Way Terminal Block	
Operating method	After Initiation of alarm Sounder should come on to produce audible sound at required levels and flasher unit should also trigger to give light flashes at intervals of required frequencies.	
Colour	Red to EN54-11	
IP rating	IP42	
Compatibility	Should be compatible with the main fire alarm panel	
Protection	In-built Short circuit Isolators	
Tone	To be settable at panel • Continuous 984Hz • Pulsed 984 / 0Hz pulse 1Hz • Two Tone 644 / 984Hz @ 1Hz cycle • Slow whoop 500-1200Hz in 3.5 seconds / 0.5secs gap	
Volume @ ± 3dB	To be settable at panel • Low volume : 92dB @ <6.5mA • Medium volume : 97dB @ <7.5mA • High volume : 100dB @ <8.5mA	
Flasher	Flasher Frequency at 1/2 Hz	
Flasher Lamp	LED	
Mounting	Wall Mount	
ENVIROMENTAL		
Temp. range	-10°C to +55°C	

AVS INSTALLATIONS PARTICULAR

SPECIFICATIONS

PARTICULAR SPECIFICATIONS - AVS INSTALLATIONS

1. SCOPE

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the electrical works, clean, complete and working to every detail as described in the specification and by related specifications and on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

The Contractor shall be responsible for the supply, delivery, installation, connection, testing and setting to work of the entire electrical system in accordance with the Contract Documents.

The Contractor shall provide all the necessary tools, skilled and un-skilled labour to comply and complete in accordance with the main contractor's works program.

2. STANDARDS & REGULATIONS

The electrical portion of the works shall comply with the current regulations of:

- The Kenya Power and Lighting Co. Ltd.
- The latest Kenya Bureau of Standards.
- Codes of Practice of the British Standards Institution
- The Regulations for Electrical Equipment in buildings issued by the Institution of Electrical Engineers (I.E.E) in Great Britain and
- This specification.

3. POWERSUPPLY

The supply voltage at the point of use shall be

- 240 volts single phase or
- 415 volts 3 phase 50hz.

This shall be a TN-C-S system via separate neutral and protective conductor throughout the system.

4. INSTALLATION OF CABLES

4.1 GENERAL

Cables shall be rated for the maximum connected load with due consideration to the following factors: -

vi. Voltage drops not in excess of 4% of the nominal voltage.
vii. Ambient temperature.
viii. Degree of excess-current protection.
ix. Grouping
x. Cables run under defined conditions.

4.2 BENDING OF CABLES

Bending of cables shall be in accordance with clause 522.8.3 of the IEE Regulations and no cable shall be bent to radius less than that specified by the cable manufacturers.

4.3 JOINTS IN CABLES

The wiring shall be carried out on the looping-in principle. All joints shall be made at the terminals of main switches, distribution boards, ceiling roses, switches and socket outlets, etc. and fixed apparatus only. **No joints** shall be made in conduits and other cable raceways unless specifically approved.

4.4 PVC / XPLE INSULATED CABLE

The wiring shall be carried out in 250 Volt grade or 440 Volt grade for 3 phase PVC / XLPE Insulated cables, as specified elsewhere run drawn in non-metallic conduits. The cables shall be of the sizes specified on the drawing.

4.5 WIRING INSTALLATION

Cables shall be drawn into accessories, distribution boards and switchgear **after** the erection of the conduit system. Under no circumstances shall it be permitted to draw cables into an incomplete section of the conduit installation.

4.6 CABLES IN CONDUITS AND TRUNKING

All cables shall be polyvinyl chloride (PVC) insulated to BS 6604, "PVC-insulated cables (non-armoured) for electric power lighting", 450/750-volt grade, or cross linked polyethylene (XPLE) unless an alternative is specified elsewhere in the contract documents.

The quality and size of cables contained in any one conduit shall comply with IEE Regulations.

No cable with a cross-section area of less than 1.5mm2 shall be used. All cables installed in a conduit or trunking system shall be PVC / XLPE insulated conductors and shall be colour coded in accordance with the IEE Regulation 524.3 and 514.3.

Final sub-circuits shall be run in conduits separate from main or sub-main cables.

All cables in conduit shall be drawn in simultaneously.

All cables shall be drawn in without the use of excessive force, without the use of lubricants and the wiring shall be easily withdrawable.

4.7 TERMINATION OF CABLES

Cables shall be terminated in accordance with **Chapter 52 of the IEE Regulations, particularly Section 527.**

Cables shall be terminated by one of the following methods: -

e) The cable conductors shall be sweated into lugs of the appropriate size for the cable and equipment terminal.
f) The cable conductors shall be secured by compression type lugs of the correct size for the cable and equipment terminal.
g) The cable conductors shall be secured in pinch screw terminals.
h) The cable shall be secured by means of clamps.

Cables terminating at pinch screw terminals shall be twisted together and single cables shall have the conductor doubled back to ensure adequate surface for pinching screws.

All terminations on PVC/SWA/PVC insulated cables shall be by compression type glands of an approved design and manufacture with facilities for clamping the armouring the outer sheath of the cable.

Glands mounted outdoors shall incorporate a seal to prevent ingress of moisture into the gland, and all glands shall be fitted with a thermoplastic shroud.

Where circular terminations are to be made, these shall be completed using Ross Counterney terminals.

Where cables are terminated in "Klippon" type terminals with parallel faced jaws, the individual cores shall be terminated using the appropriate flat or hook blade crimped lugs. Where the terminal faces are concaved, the cores shall be terminated in wires pin crimped lugs.

The Contractor shall avoid multiple connections under one screw or one pin. Where more than two wires are required, a common termination jumper bar shall be used.

Terminals shall be mounted on rails or supports. All internal wiring is to be clearly marked by markers.

4.8 SEGRAGATION OF SERVICES

Cables of differing voltages shall be segregated so that there is no possibility of a fault in a power cable damaging any adjacent cables or imposing a different voltage upon them in accordance with **IEE regulation 528.**

4.9 IDENTIFICATION OF CABLES

All cables shall be fitted with non-corrosive cable identification bands at each end, and at all changes of direction where they leave a group of cables. All cable cores connected to equipment having marked terminals shall be fitted with non-corrosive identification bands bearing markings corresponding to those of the terminals at both ends.

5. EARTHING

All earthing shall be as PME Earthing (TN-C-S) System

The whole of the metallic portion of the installation, other than current carrying parts, shall be electrically and mechanically bonded to the main earth terminal and also if applicable, to the lightning protection system or other points specified.

The installation shall be earthed in accordance with the Seventeenth Edition of the Regulations for Electrical Installation issued by the IEE, BS CP1013, "Earthing" and BS 6651' "The protection of structures against Lightning". The electrical Contractor's attention is drawn to Chapter 54 of the IEE Regulations and to the Earthing and Lightning Protection Consultants Handbook publication CHB/4/95 by W. J. Furse & Co Ltd.

A main earth terminal shall be supplied and installed adjacent to the electricity supply cable termination. The terminal shall be of ample size and capacity to suit the installation. All items of equipment, switchgear, etc., shall be bonded to this earth terminal using PVC / XLPE insulated PVC / XLPE sheathed cables, coloured green and yellow as per table 51 and sized in accordance with **section 543 of the IEE Regulations**. An invorine label reading **"SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE" in engraved upper case characters not less than 4.75mm high**, shall be permanently fixed immediately adjacent to or on the earth terminal.

A heavy duty copper clamp **complying with BS. 951** shall be used to bond the main protective conductor to the electricity supply cable armouring or metallic sheath (where applicable the armouring and sheath shall be bonded together).

All protective conductors shall, where possible, be enclosed within metal trunking or conduit serving switchgear, distribution board, Generators, etc., so as to provide mechanical protection. Where protective conductors are run on building surfaces they shall be properly fixed and supported by means of PVC coated metal saddles along selected routes.

Earth continuity between separate items of switchgear, distribution boards, Generators, etc., mounted adjacent to one another shall be affected by means of high conductivity continuous copper tape, or PVC / XLPE sheathed cable, coloured green and yellow **as per table 51** and sized in accordance with the **Section 543 of the IEE Regulations**, connecting all items to the earth terminal.

All items of Generators, switchgear and the outer sheaths of MICC cables, the armouring of all PVC/SWA/PVC cables together with all other items of electrical plant and equipment shall be effectively earthed by means of a protective conductor.

At every terminal point on the fixed wiring an integral earth terminal shall be provided e.g BESA boxes, accessory boxes etc. A protective conductor shall be provided and installed between this terminal and the earth terminal on the associated switch, socket outlet, luminaire etc.

Each circuit protective conductor shall be connected to a multiway earth terminal provided and fixed within each distribution board. The earth terminal shall be provided with an adequate number of ways such that not more than one conductor per terminal shall be installed and the earthing conductors shall be connected in the same sequence as the current carrying conductors.

All materials and sundry item shall be provided whether or not specifically mentioned necessary to completely and effectively earth the installation. The installation shall be fully protected against dampness and corrosion and the effect of electrolytic action between dissimilar materials. A completely permanent installation shall be provided which shall be fully accessible for regular testing and inspection.

The value of earth resistance from any point of an installation to the general mass of earth shall be low enough to ensure operation of circuit protective devices and shall in any case not exceed the following:

iv. Four (4) ohms for electrical equipment
v. One (1) Ohm for ICT Equipment

Each earthing cable shall terminate in an approved design of cable lug.

Where earth conductors are run upon structures or walls they shall be fastened by means of heavy gauge non-ferrous fasteners not more than 0.75 m apart on horizontal runs and not more than 1.2 m apart on vertical runs and to give a minimum clearance of 4 mm from the fixing face.

In the event of the Contractor not being able to establish a suitable earth connection to the electricity supply cable, earth electrodes shall be installed which shall be galvanized or copper clad steel extendable rods not less than 16 mm diameter and not less than 1.2 m in length. Connections to electrodes shall be made by means of solderless mechanical clamps.

To avoid corrosion, all earth system connections shall be cleaned bright and immediately covered with silicon MS4 compound or approved equal.

Earth pits, where required, shall be in accordance with the Contractor's relevant drawings, with the facility to disconnect the earth ring while measuring the electrode earth resistance.

6. FUSED SWITCH UNITS, SWITCHFUSES AND ISOLATORS

The above units comply with **BS 5419 and shall be 500-volt type** and installed where specified and indicated on the relevant drawings.

All switchgear shall be provided with suitable locks for padlocking the switches in the 'OFF'

position. The cover shall be interlocked with the operating mechanism to prevent it from being opened in the 'ON' position. This interlocking shall also prevent the switch from being closed with the cover open unless for maintenance purposes. The cover shall be gasketted to prevent ingress of dust.

The switch action mechanism shall be of the parallel operation (double break type having cartridge fuses mounted switches) and shall be **ASTA certified** to meet adequately all the duties specified.

The end plates shall be removable for drilling for conduit or cable entry and shall be fitted with additional distance pieces where necessary. Switchgear boards shall be fixed to the wall/floor by Rawl bolts or other approved fixings.

No building alteration shall be allowed when moving the switchboard into position, the switchboard being supplied in sections to be built in position, if so required.

Switchgear shall be delivered to site when required to suit the progress of the works. Care shall be taken to preserve the manufacturer's paint finish. Any refurbishing etc. shall be carried out, using paint obtained from the switchboard manufacturer, to the original standard of finish.

All fuses in switchgear shall be HRC fuses sized for the fused-switch units or switch-fuses etc., in which they are incorporated. They shall be ASTA certified for compliance with BS 88, Category of Duty 440 A.C 5 Class 01 and in all cases fuse links shall be selected to provide circuits discrimination.

7. CONTROL PANELS AND CUBICLES

The details specified shall apply as far as fused switches, bus-bars and rating etc are concerned. The panels shall be constructed from rolled steel channel minimum size 60 mm x 30 mm deep x 5 mm or equivalent angle section clad with sheet steel of 3 mm gauge. 2 mm gauge may be used for covers and doors of not more than 1 m square.

Terminals shall be of the "Klippon" standards rail-mounted feed-through type or approved equal. All terminals shall be identified by means of numbered or lettered marking tags, which shall be identical to the number of letters applied to the cables. Cables shall be identified as terminations by means of cable markers as manufactured by "Klippon" or approved equal. 25% spare terminals capacity within wiring duct shall be provided. All components motors, starters, relays, timbers, etc. shall be labelled showing their reference and function and these shall relate to the panels' schematic wiring diagram provided with the "As-built" drawing and manuals.

All control panels shall be fitted with multi-pole isolating switches through which all electricity supplies shall pass. The door(s) of the control panel shall not open unless the isolating switch is in the "off" position. A facility to lock the control panel isolating switch in the "off" position shall be included.

8. DISTRIBUTION BOARDS

a) General

All distribution boards, unless stated otherwise, shall be miniature Circuit Breaker Distribution Boards and shall be of surface or flush type, as specified or instructed on site. Facilities for local isolation of the distribution boards shall be provided by either a local fused-switch unit or an integral isolating switch, whichever is specified.

Where surface mounted on a flush installation, all conductors shall terminate behind the board in an adequate box. For surface mounting, trunking shall be fixed between the board

and ceiling level, or conduits run directly into the board. Adequate earth continuity connection shall be made between the various components.

b) Miniature Circuit Breaker Distribution Boards

MCB distribution boards shall comply with BS. 5486 part 12 'Particular requirements for miniature circuits-breaker boards'. The cases shall be constructed of heavy gauge sheet steel, in such a manner as to afford rigidity and maximum ease of wiring for full size circuit and main cables.

The cover shall be provided with an efficient gasket or alternatively designed with generous overlapping edges to prevent the ingress of dust. Components shall not be manufactured from zinc alloy in conjunction with sheet steel where they are relied upon for earth continuity.

Where the cover is required to be lockable, cylinder type locks shall be provided, having two keys per lock. All locked distribution boards shall be handed to the Engineering Supervisor on completion of the works. The cases shall be provided with detachable cable/conduit terminating plates, which shall be reversible and interchangeable from top to bottom.

All screws and nuts used in the construction of the case shall be fitted with shakepoof washers and care taken to ensure efficient earth continuity. An external earthing terminal with cable socket shall be fitted.

All MCB banks shall be fitted to frames, with robust locking plates provided to ensure the frames rigidly in the fixed position.

The banks shall be so spaced to obviate the necessity for insulating barriers, but protection shall be provided by means of insulating shields to prevent accidental contact with main bus-bars and incoming mains cable.

Bus-bars shall be of high conductivity, hard drawn copper conductors connected to the MCB contacts by means of spring washered screws or bolts, unless plug-in type MCB's are specified.

Neutral bars shall be similar to the main bus-bars and shall have two screw terminals per way for rating of 30 amps or over. Single screw connections will be allowed for capacities up to 30 amps. The neutral bars shall have one terminal for each MCB within the board, and connection of conductors to the neutral bar shall be in the same order as the MCB ways.

Where installations are carried out with cables with a protective conductor, all distribution boards shall also contain internal earthing bars similar to the neutral bars detailed above, with one terminal for each MCB within the board. Earthing conductors shall be connected in the manner described for neutral conductors to neutral bars.

Where a main integral isolating switch is provided in an MCB case it shall be arranged to isolate incoming live and neutral main cables from the bus-bars. The isolator switch shall be rated at 500 volts and of the quick make-and break pattern with positive action. Incoming and outgoing terminals shall be fitted with two clamping screws and outgoing conductors to the bus-bars shall be high conductivity hard drawn copper rods.

Isolating switches shall comply with IEE Regulations, Part 537, and shall be capable of carrying their full rated load continuously and shall 'make' or 'break' their full rated load without undue burning of the contacts.

c) Miniature Circuit Breakers (MCB’s)

All MCB's shall have movements which are positive in both directions (make and break) so as to enable units to be closed decisively by the operation of the handle, and to be able to

assume the 'OFF' position unless the contacts are definitely separated, to safeguard against false indications.

The hand shall be trip free to make it impossible for the operator to hold the breaker in the closed position under faulty conditions. The operating mechanism and arc chambers of the circuit breaker shall be separated from the terminals and fixing screws.

Terminal identification shall be readily discernable as viewed from the front of the board with automatic and clear signal identification for both 'ON' and 'OFF' position.

All terminals shall be readily accessible from the front and each wiring chamber shall be closed by a screw fixed cover which protects the terminals and prevents dust from settling on the insulation.

Where the full capacity of a distribution board is not required the electrical Contractor shall fix blanking plates in the vacant MCB housings. All MCB's shall be rated at 500 volts minimum, and comply with BS 3871 "Miniature and moulded case circuits breakers" and 4752 part 1, "Circuit breakers".

9. LABELLING AND ENGRAVING

a) Labelling

All fused-switch units, switch fuses, switches, bus-bar chambers, distribution boards etc., and all items of equipment on the main panel shall be identified in accordance with **Section 514 of the IEE Regulations** and shall have securely fitted externally a white 'Traffolyte', 'Formica' or other approved plastic laminate label engraved with 6 mm high black letters detailing the function of the equipment and any reference number.

Red, Yellow, Blue, Black & Green plastic laminate phase discs shall be fixed inside all switchgear and distribution boards to indicate to which phase of the supply the various circuits are connected. The colour rings shall comply with **Part 524 of the IEE Regulations.**

Each TP or TP & N item of switchgear shall have fitted on the cover a white plastic laminate label having **'CAUTION' - 415 VOLTS'** engraved in 10 mm high red lettering.

b) Engraving

The electrical Contractor shall allow for engraving of all switched fused spurs, double pole switch accessories and any other accessories which are customarily required.

The accessory plate shall be engraved in either black or red, capital letters 5 mm high, detailing and appliance or equipment being supplied by the accessory e.g., 'WATER PUMP' etc.

10. INSPECTION AND TESTING

A visual inspection shall be made in accordance with IEE Regulations Chapter 61. References shall be made to Appendix 6 of the IEE Regulations, which is a checklist for initial inspection of installations.

The installation shall be inspected and tested by the Contractor in accordance with Chapter 61 of the IEE Regulations.

Where any part of installation is to be concealed within a building, fabric tests shall be made to ensure that the installation is satisfactory prior to concealment.

Upon completion of the works the whole installation shall be subjected to the tests detailed hereafter and every defect shall be noted, corrected and brought to the notice of the Engineer.

All tests shall be witnessed by the Engineer to his full satisfaction and he shall be given at least one week's notice in writing of the proposed tests.

All labour and test instruments shall be provided by the Contractor and the instruments shall be correctly calibrated and certified for the limits of accuracy required and shall be operated by a competent person. If, in the Engineer's opinion, a particular instrument is not suitable, then an acceptable alternative shall be provided. The Engineer shall be at liberty to demand the use of any testing instrument or apparatus that he may reasonably consider to be necessary in the execution of the testing.

In the event of the installation failing to pass the test, the Engineer has the full authority of the Employer to deduct from the Contract Price all reasonable expenses incurred, due to him being required to attend a repetition of the test.

The following items, where relevant, shall be tested in the sequence indicated. Standard methods of testing, in respect of some of the following regulations of this section, are given in Appendix 6 of the IEE Regulations.

xi. Continuity of ring final circuit conductors.
xii. Continuity of protective conductors, including main supplementary equipotential bonding.
xiii. Earth electrode resistance.
xiv. Insulation resistance.
xv. Insulation of site-built assemblies.
xvi. Protection of barriers or enclosures provided during erection.
xvii. Insulation of non-conducting floors and walls.
xviii. Polarity.
xix. Earth fault loop impedance.
xx. Operation of residual current devices and fault voltage operated protected devices.

Upon completion of all tests and commissioning, two copies of detailed certificates shall be provided by the Contractor to show that the equipment, materials, installation etc., have been tested and commissioned. One copy of each, duly completed and signed shall be submitted to the Engineer within 15 days of the results being obtained. The second copy of the certificates shall be retained to be included with operator and maintenance manuals. The results of the test and details of completion for the electrical test shall be detailed on the Test and Completion Certificates respectively; issued by the National Inspection council for Electrical Installation Contracting or other approved authority.

11. DEFINITIONS & INTEPRATION OF TERMS

The terms, phrases and abbreviations shall be deemed to have the following meanings wherever used hereinafter and in all contract documents.

i. Consumer Unit:

"Supply and install SP/N power consumers unit complete with .SP/N Integral isolator".

ii. Distribution Board:

"Supply and install TP/N power distribution board, complete with TP/N integral isolator."

iii. Earthing:

Protective multiple earthing to Kenya Power and Lighting Co. (K. P. & L. Co.) Standards

comprising 1200mm deep-driven pure electrolytic copper earth electrode, electrode clamps, yellow/green earth lead, earth pit complete with cover and all accessories".

iv.Labelling:

"Comprehensive, concise and instructive permanent labelling of all the sub-circuits, complete with identification of the sizes of all the sub-circuit cables, permanent traffolyte identification of the board such as "DB A" and identification of the sizes of the sub-mains and their origin e.g. "Board A: Supply, 4.x16mm2; SOURCE, DB1"

v.Specifications

All Distribution boards / Consumer units and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be Merlin Gerlin but shall be subject to the approval of the Engineer.

All Conduits and associated accessories to be used shall be as Specified in the bills of quantities. Where the in the event it is not mentioned, the default manufacturers shall be Metro but shall be subject to the approval of the Engineer.

All conduits/ducts must be heavy gauge. Where steel pipes are specified, they must be minimum of **Class B** in strength.

vi.Contract

The contract shall be for supplying, delivering, fixing / installing, testing, commissioning and setting to work to the full satisfaction of the Engineer and the Contractor's price must include all costs for the entire process.

The installation shall be carried out strictly in accordance with the provision of the **17th Edition of Wiring regulations as published by the Institution Electrical Engineers, Great Britain**, the most current relevant **standards issued by the Kenya Bureau of Standards**, and with strict adherence to the safety requirements and **by-laws of the Kenya Power and Lighting Co. Ltd.**

All equipment and accessories supplied for the contract must be certified by the Kenya Bureau of Standards and a certificate issued upon request.

The Contractor shall ensure that the highest standards of workmanship and highest quality materials are used at all times. Inferior workmanship and low quality materials shall be rejected and replaced at the Contractors own cost.

All the mounting heights will be re-confirmed with the Engineer on site.

12. GENERAL

The AVS Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the AVS works, clean, complete and working to every detail as described in the specification and by related specifications to the satisfaction of the Consulting Engineers.

13. AVS FOR PROPOSED DEVELOPMENT

The installations indicated in the schematics shall be fed by uninterruptible power supply. This supply shall be from a centralized AVS system.

The AVS unit supplied must have Independent Correction of each phase.

The AVS shall be supplied together with an AVS By-Pass Switch Gear which shall comprise an Input breaker & under/over voltage relays with contactors, Reversed Phase sequence detection and correction, Delay on Start (Soft Start) and It must also have TVSS provided as part of the package. Cabling and terminations between the power Automatic Voltage stabilizer and the By-pass switch shall be part of these works and all materials and labor for such must be included in the bid.

14. POWER DISTRIBUTION REQUIREMENT

The AVS will be located in the AVS room located at the indicated designated space within the premises and will be supplied from a three-phase input mains. The AVS output shall be three phase and should have its own supply bus separate from the other electrical power supply up to the work area outlets or as may otherwise be indicated in the schematics.

15. POWER DISTRIBUTION REQUIREMENT – FOR THE PREMISES

The AVS will feed a dedicated stabilized power distribution board which shall feed sub boards or various final sub circuits on their respective zones or as may otherwise be indicated in the schematics.

The various distribution boards or consumer units will be supplied and installed by others

16. OPERATING CONDITIONS

- The equipment and all components shall be suitable for operation in ambient conditions of 5^{o} to AVS 45^{o} centigrade and up to 100% relative humidity in an unheated ventilated building.
- All ratings of equipment and components shall be interpreted as site ratings and NOT sea level or other ratings.
- The AVS Contractor is deemed to have visited the site and if unable to locate it to apply to Norkun Intakes ltd, P.O. Box 605, 00100 – Nairobi or info@norkun.com, for directions to enable him to do so. The AVS Contractor is deemed to have acquainted himself therewith as to its nature, position, means of access, etc., and no claim in this connection will be allowed. No claim will be allowed for traveling or other expenses which may be incurred by the AVS Contractor in visiting the site or preparing a tender for the contract works, and subsequent site visits to be called by the Engineer and / Architect during the contract period.

17. FEATURES OF THE AUTOMATIC VOLTAGE STABILIZER

STANDARD SPECIFICATIONS ON SITE			
Item	**Feature**	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
1	**Input**	415 ± 25% (3P+N)	
2	**Output**	415 ± 1% (3P+N)	
3	**Capacity**	KVA as Specified	
4	**Regulation**	Better than ± 1%	
5	**Winding**	Copper Wound	
6	**Duty Cycle**	Continuous	

STANDARD SPECIFICATIONS ON SITE			
Item	**Feature**	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
7	**Frequency (adjustable)**	50 HZ ± 0.5% HZ	
8	**Waveform Distortion**	Nil	
9	**Power Factor**	Nil	
10	**Ambient Temperature**	5° C to 45° C Max	
11	**Start / Stop**	Must be Soft Start & Soft Stop	
12	**Transient voltage Surge suppression**	Mandatory to have	
13	**Monitoring relay for under / over voltage**	Mandatory to have	
14	**Environment**	Designed for indoor tropical use up to 100% relative Humidity in an unheated unventilated building.	
15	**Mounting**	Free on wheel (lockable) / with floor mounting brackets as per manufacturer's recommendation	
16	**Server Motor**	Brushless	
17	**Control Type**	Servo Control / Relay Control	
18	**Cooling**	Air Cooling / Oil Cooling	
19	**Temperature Rise (Max)**	45° C Above Ambient	
20	**Correction Speed**	50 Volt per Second minimum	
21	**Correction Accuracy**	± 1%	
22	**Trip & Restart**	Auto System	
23	**Duty Cycle**	100% Continuous	
24	**International Compliance standards**	IEC 439, BS 6527, IEEE 587	
25	**Transient Suppression**	Above 270V I-ph. 450V 3-Ph.	
26	**Servo Bypass Switch**	Mandatory to have	
27	**Digital /Analog frequency voltmeter & Ammeter**	Mandatory to have	
28	**Start / Stop Push Buttons**	Mandatory to have	
29	**RFI Filter / Surge suppressor**	Mandatory to have	
28	**Meter**	Voltmeter with input and output selector switch	
30	**Indicating Lamps**	Power ON, High/Low Voltage indication	
31	**Protection**	• Under voltage / Over voltage cutoff at output • Over load protection	
32	**Controls**	• Auto / Manual selector switch • Increase / Decrease selector switch	

STANDARD SPECIFICATIONS ON SITE			
Item	**Feature**	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
		• Input / Output Volt selector switch • Port for variation in output in auto mode	
33	**Auto Start / Stop**	The inverter should stop and start automatically upon mains power outage and restoration. Must be soft start and soft stop	
34	**Auto Search Facility**	The inverter runs on auto by-pass with alarm if the load is greater than its' rated output and keeps searching for its correctness after every 5 secs. As soon as the load is decreased, it gets on	
35	**BMS Compatibility**	As a mandatory requirement, the unit must come factory fitted with a BACnet IP BMs port fully configured and any necessary software for plug and play for all the parameters in the LCD display pane	

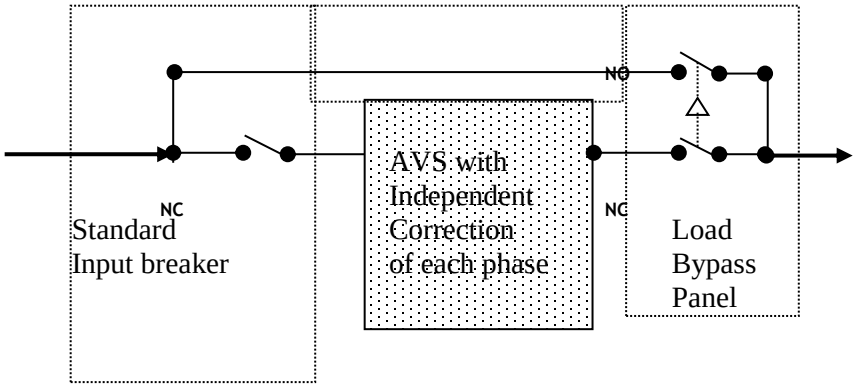
18. BMS Compatibility

As a mandatory requirement, the unit must come factory fitted with a BACnet IP BMs port fully configured and any necessary software for plug and play for all the parameters in the LCD display pane

Line Drawing for AVS By-Pass Switch Gear

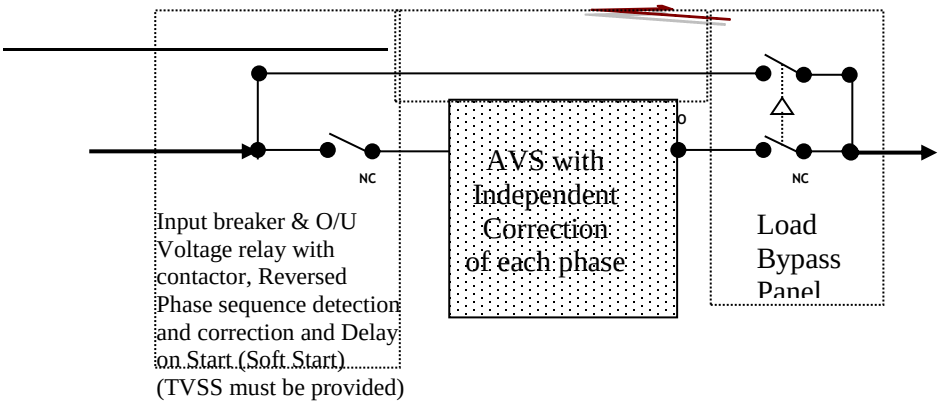
Option 1:

AVS Bypass standard with Manual bypass only



Option 2: (this is the option to be priced for complete with by pass and all mccbs Indicated

AVS Bypass with additional protections



KEY NC – Normally Closed
NO – Normally Open

UPS INSTALLATIONS PARTICULAR

SPECIFICATIONS

PARTICULAR SPECIFICATIONS FOR UNINTERRUPTIBLE POWER SUPPLY UNITS

1.1 GENERAL

This specification describes the general features of a continuously rated, solid state three / single phase Uninterruptible Power Supply (UPS). The UPS utilizes true on-line, double conversion topology, whereby the output power supplied is derived directly from the UPS inverter without the need for an internal step-up output transformer. The UPS will be used to operate in conjunction with the existing building supplies and shall provide high quality power distribution for critical loads.

1.2 STANDARDS

The product shall have CE marking in compliance with the following European directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

The manufacturer shall demonstrate conformity with the UPS harmonized standards and directives EN 62040-1-1 (Safety) and EN 62040-2 (EMC).

The UPS shall be designed in accordance with the applicable sections of the current revision of the following standards. Where a conflict arises between these documents and statements made herein, the statements in this specification shall govern.

Safety Standard:

- EN 62040-1-1:2003
- EN 60950-1:2001/A11:2004

Electromagnetic Compatibility Standard (EMC):

- EN 62040-2:2005
- EN 61000-3-2:2000
- EN61000-3-3:1995?A1:2001
- EN61000-6-2:2001
- EN61000-6-4:2001

Performance Standard:

- EN 62040-3:2001

1.3 SYSTEM DESCRIPTION

1.3.1 General

The UPS system shall consist of a single UPS module or the appropriate number of UPS modules connected in parallel for operation in capacity / N+n / n+1 redundancy mode as stated in the schedules.

For a parallel configuration, the UPS shall be supplied complete with automatic parallel connection terminals, communication cables, individual module isolators, input/output power terminals and an integral wrap around maintenance bypass switch. Single points of failure shall be eliminated whereby each UPS module is autonomous, incorporating individual active components such as Power Units, Static Bypass Switches, CPU's, Control Panels and Separate Battery Sets. All UPS modules must operate simultaneously and equally share the load without utilizing a centralized static bypass switch or system control module.

1.3.2 Parallel Installation

1.3.2.1 Capacity (non-redundant) system.

All the UPS modules connected in parallel are required to supply the full rated load. If a UPS module should malfunction, the load is to be transferred automatically, and simultaneously, to the bypass line via each of the UPS internal static bypass switches.

The battery set should consist of at least two protected strings so that in the event of a battery malfunction the affected string is automatically isolated from the system thereby ensuring battery autonomy is retained, albeit of a shorter duration.

1.3.2.2 Redundant operation

The UPS system shall operate in an N+n configuration where N is the number of UPS units connected in parallel to support the load and n is the number of UPS units connected in parallel to provide the coefficiency of redundancy.

The parallel UPS units shall be capable of operation with a separate dc supply for each UPS unit. The batteries should be configured so that in the event of a failure of one battery set the specified autonomy at full load is maintained.

The malfunction of one of the UPS modules shall cause that particular UPS module to be automatically isolated from the system and the remaining UPS modules shall continue to support the load.

Replacement or repair of a UPS module shall be achieved on line, without risk to personnel, and without disturbance or risk to the connected load. It should not be necessary to place the parallel UPS configuration into maintenance bypass mode, thereby switching the connected load directly on to mains or generator supply, to facilitate the replacement or repair of a UPS module.

1.3.3 Modes of Operation

The UPS module shall be designed to operate as a true on-line, double conversion, Voltage and Frequency Independent (VFI-SS-111) system where the UPS output is independent of

supply (utility/generator) voltage variations, and frequency variations are controlled within EN 62040-3:2001 limits.

The following modes of operation shall apply:

A Normal - The critical a.c. load is continuously supplied directly by the UPS inverter. The UPS input free running rectifier derives power from the utility or generator a.c. source and supplies d.c. power to the inverter. A separate but integral battery charger shall maintain a ripple free float-charge voltage to the battery.

B Battery - Upon failure of the input a.c. power supply the critical a.c. load is supplied by the inverter, which obtains power from the battery. There shall be no interruption in power to the critical load upon failure or restoration of the utility or generator a.c. source.

C Recharge - Upon restoration of utility or generator a.c. power after a power outage, the input rectifier shall automatically restart and resume supplying power to the inverter and the battery charger shall recommence recharging the battery. The UPS input rectifier shall provide a soft start on the return of the utility or generator a.c. power. For parallel configurations, each UPS module shall switch on sequentially, with a switch on delay of between approximately 5 to 10 seconds.

D Automatic Restart - Upon restoration of utility or generator a.c. power, after an a.c.power outage and after a complete battery discharge, the UPS module(s) shall automatically restart and resume supplying power to the connected load via the inverter.

E Static Bypass - The static bypass shall provide an alternate path for power to the connected a.c. load and shall be capable of operating in the following manner:

Single UPS module installation

1 Automatic - In the event of a UPS failure or should the inverter overload capacity be exceeded, the UPS unit shall perform an automatic transfer of the connected a.c. load from the inverter to the bypass source.

2 Manual Operation - Should the UPS module need to be taken out of service for limited maintenance or repair, manual activation of the bypass shall cause an immediate transfer of the connected a.c. load from the inverter to the bypass source. Full electrical isolation of the UPS system shall therefore be obtained, without disruption to the critical load, by operation of an integral wrap-around maintenance bypass switch.

Parallel UPS module installation

1 Automatic - In the event of a UPS failure the faulty UPS module shall automatically disconnect itself from the critical bus without affecting the critical load. If the remaining UPS module(s) are unable to support the load, e.g. an overload condition, all the UPS modules (including the faulty module) shall perform an automatic transfer of the connected a.c. load to the bypass source via each of their internal static bypass switches.

2 Manual - Should all the UPS modules need to be taken out of service for limited maintenance or repair, manual activation of the static bypass switch on one of the UPS modules shall cause an immediate transfer of the connected a.c. load to the bypass source

via each of the UPS modules' internal static bypass switch. Full electrical isolation of the UPS system shall therefore be obtained, without disruption to the critical load, by operation of an integral wrap-around maintenance bypass switch.

1.4 SYSTEM CONFIGURATION

The UPS system configuration shall comprise of fully enclosed, free standing module(s)

One System cabinet

1. The system cabinet shall be fitted with UPS modules. Each module shall be rated for a full load capacity of the kVA stated in the schedules, at 0.8p.f., 400Vac, 50Hz, three phase input/output.

2. The modules shall be internally and automatically connected in parallel within the system cabinet to provide the indicated capacity / redundancy.

3. The above configuration shall include for spare ways within the system cabinet to permit future UPS redundancy, or capacity, upgrade without disruption to the critical load.

Two System cabinets

1. The system cabinets shall be fitted with a total of UPS modules. Each module shall be rated for a full load capacity of kVA, at 0.8p.f., 400Vac, 50Hz, three phase input/output.

1. The modules shall be internally and automatically connected in parallel within each system cabinet. Separate external switchgear shall be provided by the UPS manufacturer to enable the output of each system cabinet to be connected in parallel. The switchgear shall be designed to comply with the LV specifications described elsewhere and shall incorporate all the necessary, protective devices, isolators and bypass switches to ensure safe and correct parallel operation in accordance with the UPS manufacturers recommendations.

3. The above configuration shall include for a total of spare ways within the two system cabinets to permit future UPS redundancy, or capacity, upgrade without disruption to the critical load.

1.5 PERFORMANCE REQUIREMENTS

The UPS shall be a true on-line double conversion, Voltage and Frequency Independent (VFISS- 111) technology in accordance with the performance standard EN 62040-3:2001. The UPS system shall be capable of paralleling for capacity or redundancy up to a maximum of 10x UPS modules connected in parallel.

1.5.1 AC Input to UPS

Voltage configuration:, 415/240 Vac nominal, three- phase, 4-wire-plus-ground.

Input frequency: 35 to 70 Hz, without switching to battery supply

Input current distortion: sinewave <2% THDi maximum at 100% rated load, 415/240 Vac

Input power factor: equal or greater than 0.99 at 100% rated load, 0.96 at 50% rated load (lagging)

Inrush current: limited by soft start and not exceeding In

The input voltage window shall be ±20%, based on a nominal input voltage of 230/400V. Within the input voltage range shown below the UPS shall not draw power from the batteries to support the load.

AC Output

Output Rating	Single or Capacity UPS Installation Continuously for rated kVA />0.9 p.f.
Output Rating	Parallel Redundant UPS Installation
	N+1 parallel redundant, continuously at rated p.f kVA and >0.9
Voltage configuration	415/240 Vac, three-phase, 4-wire-plus-ground.
Voltage tolerance	static ± 1% dynamic ± 4% (zero to 100% to zero load steps)
Frequency regulation	50 Hz, ± 0.1% (free running)
Frequency slew rate	2.0 Hz/sec maximum
Bypass frequency synchr. range (selectable)	<± 2%
Voltage Distortion	± 2% total harmonic distortion (THD) maximum -100% linear load ± 4% total harmonic distortion (THD) maximum -100% non-linear load (EN 62040-3:2001)
Load power factor range	>0.9, without de-rating
Load peak (crest) factor	3:1 minimum
Load unbalance	100% (all 3 inverter phases shall be regulated independently)
Overload capability (inverter)	125% Load -10 min 150% Load -60 sec If the overload limits or times are exceeded the UPS(s) will transfer the load to bypass supply (if available) via the internal static transfer switch(s)
Phase Angle Tolerance	± 0 deg.
Short circuit capability (rms)	Inverter 2 x In for 250ms Bypass 10 x In for 10ms
Transient recovery time	to within 1% of steady state output voltage within 20 milliseconds

1.5.3 UPS Efficiency

The overall efficiency (ac-dc-ac, on-line mode) shall not be less than 90% at 10% to 100% of full rated load.

1.5.4 Batteries

A The battery system shall be sized to support a connected load (>0.9 p.f.) for a minimum of **10** minutes (unless otherwise specified in the schedules) at an ambient temperature of 0° to 40°C.

B The battery system shall consist of gas recombination, valve regulated, lead acid cells (VRLA), compliant to BS6290 Part 4 and BS EN6089-2.

C The UPS battery charging circuit shall comprise of a separate battery charger and not depend on a charge voltage being derived from the UPS input rectifier. Consequently the battery charging voltage shall have zero a.c. (ripple) content.

D For single UPS modules the battery system shall consist of a minimum of 2 parallel strings of multiple cells. Each individual parallel string shall have its own dedicated means of electrical protection.

E For multiple UPS modules connected in parallel the battery system shall comprise of a separate battery set for each individual UPS module. Each separate battery set may consist of one protected string of multiple cells. If two or more parallel strings are used then each individual string shall have its own dedicated means of electrical circuit protection.

For the above battery system arrangements the batteries shall be configured so that in the event of a battery malfunction the affected string is automatically isolated from the system thereby ensuring battery autonomy is retained (see System Description 1.3.2).

F The batteries shall be housed in cabinet/s comprising a floor-standing steel enclosure with dimensions and paint finish to match the UPS system cabinet/s to form a continuous suite when standing immediately adjacent to the UPS system cabinet/s.
The battery cabinet/s shall have full width opening doors to permit ease of access for the purposes of maintenance and/or repair of the batteries.

G Alternatively, the batteries shall be housed on open or cladded racks of a steel construction, having an epoxy powder-coated finish, with adjustable feet for leveling and adequately designed to support the weight of the batteries and permit ease of access for the purposes of maintenance and/or repair of the batteries.

H A fully discharged battery system shall be capable of being recharged to 80% of the UPS output capacity within a maximum period of 10 times the normal total discharge time period, and to 90% of the UPS output capacity within a maximum period of 4 hours.

I The UPS d.c. bus voltage shall be variable whereby the number of battery blocks can be adjusted between 40 to 50 (12 Vdc blocks) or 80 to 100 (6 Vdc blocks) to enable the battery system to be optimized for size and cost.

1.6 ENVIRONMENTAL CONDITIONS

1.6.1 The UPS system shall be designed to operate continuously at full load without degradation of its reliability, operating characteristics or service life in the following environmental conditions:

- UPS ambient temperature range 0°C to 40°C,
- Battery ambient temperature range 0°C to 40°C
- Humidity 5 to 95% RH non-condensing

1.6.2 The UPS system shall be designed for operation in altitudes up to 1000 metres, without the need for derating or reduction of the above environmental operating temperatures.

1.6.3 The audible noise generated by each UPS module during normal operation shall not exceed 65 dBA measured at 1 metre from the surface of the UPS.

1.6.4 The UPS system shall be able to withstand a minimum 15kV electrostatic discharge without affecting the critical load.

1.6.5 The maximum floor load of a fully populated system cabinet (excluding batteries) shall not exceed a UDL of 9.0 kN/ m2

1.6.6 To permit access through a standard single doorway opening, either the width or the depth of the UPS system and battery cabinets shall not exceed 750mm.

1.6.7 For UPS modules within a cabinet, the UPS system cabinet shall comprise of a floor standing steel enclosure to house the UPS module(s), automatic parallel connection terminals, communication cables, individual module isolators, input/output power terminals and an integral wrap around maintenance bypass switch, necessary for the correct operation of the UPS in accordance with the requirement of the specifications. All switchgear and interconnections must be adequately protected to enable an isolated UPS module to be safely maintained or repaired whilst the remaining system supports the load.

1.6.8 It shall be possible to true 'hot-swap' each UPS module to enable the safe removal, or insertion, of a UPS module without risk or disruption to the critical load and without the need to transfer the critical load directly to mains or generator supply.

1.6.9 The UPS system shall be designed to limit the injection of current harmonics in to the incoming utility supply and as such the maximum total input current harmonic distortion should not exceed 2% THDi when the UPS system is operating at the UPS manufacturer's specified rating.

1.7 USER DOCUMENTATION

The specified UPS system shall be supplied with one (1) user's manual. Manuals shall include:

1. General arrangement of the UPS showing dimensions and weight
2. User operating instructions
3. Single line schematic diagram with functional description of the equipment
4. Installation drawing along with recommended cable and protective device sizes
5. Safety and maintenance guidelines

1.8 AFTER SALES SERVICE

1.8.1 Warranty

The UPS manufacturer shall warrant the UPS system, including the batteries, against defects in materials and workmanship for 12 months from the date of commissioning or 15 months from the date of delivery, whichever is soonest. Subject to the UPS's being commissioned by the manufacturers trained engineer, the warranty shall provide free replacement parts and onsite labour.

1.8.2 Extended Warranty

The UPS manufacturer shall provide the facility for enhancing or extending the warranty by providing an annual maintenance contract. The maintenance contract shall provide:

- guaranteed response time
- at least two preventative maintenance visits per year
- 24 hour telephone support directly from the UPS manufacturer
- labour, travelling to site and incurred expenses
- replacement parts (excluding batteries outside the warranty period)

1.9 QUALITY ASSURANCE

1.9.1 UPS Manufacturer Qualifications

The UPS manufacturer shall have acceptable experience in the design, manufacture, and testing of static UPS systems.

1.9.2 Factory Testing

Before shipment, the manufacturer shall fully and comprehensively test the system to assure compliance with the specification.

SECTION 2 • PRODUCT

2.1 FABRICATION

2.1.1 Construction

All materials and components making up the UPS shall be new, of current manufacture, and shall not have been in prior service except as required during factory testing. The UPS shall be constructed of replaceable sub-assemblies.

2.1.2 Wiring

Wiring practices, materials, and coding shall be in accordance with the requirements of the EN 50091 and other applicable British and European codes and standards.

2.1.3 UPS Cabinet

The UPS system cabinet shall offer a minimum degree of protection to the EN 60529 standard, IP20 code.
The UPS cabinet shall be cleaned, primed and painted in RAL 9007. Either the width or the

depth of the UPS system cabinet should not exceed 750mm, to permit access through a standard doorway.

2.1.4 Battery Cabinet

The battery cabinet shall offer a minimum degree of protection to the EN 60529 standard, IP20 code. The battery cabinet shall be cleaned, primed and painted to RAL 9007 and should match the UPS system cabinet(s) in appearance and height. Either the width or the depth of the battery cabinet should not exceed 800mm to permit access through a standard doorway.

2.1.5 Battery Racks

The battery racks shall be of a steel construction, having an epoxy powder-coated finish, with adjustable feet for levelling. Open racks shall not exceed 2 meters in height to the top tier and should not be more than 2 rows deep if it is not possible to gain rear access, e.g. the rack is placed against a wall.

Cladded racks shall offer a minimum degree of protection to the EN 60529 standard, IP20 code and the panels shall be cleaned, primed and painted to RAL 9007.

2.1.6 Cooling

The UPS module shall be forced-air cooled by an internally mounted fan.

2.2 COMPONENTS

2.2.1 Input Converter

A General

Incoming a.c. power shall be converted to a regulated d.c. output by the input converter for supplying d.c. power to the inverter. The input converter shall provide input power factor and input current harmonic distortion correction.
12 pulse rectifier and/or filter devices will not be accepted if they have a detrimental effect on the overall UPS efficiency.

B AC Input Current Limit

The input converter shall be provided with a.c. input over current protection.

C Input Protection

The UPS shall have built-in protection against undervoltage, overcurrent, and overvoltage conditions, including low-energy surges introduced on the primary a.c. source and the bypass source. The UPS cabinet shall not contain an input circuit breaker. The electrical contractor shall supply an input circuit breaker/fuse sized to supply the rated load and to recharge the battery at the same time.

D Battery Recharge

To prolong battery life, the UPS shall have the facility for automatically adjusting the battery charging voltage according to the environmental temperature of the batteries.

The battery charger shall be ripple-free avoiding premature battery ageing.

2.2.2 Inverter

A General

The inverter shall convert d.c. power from the input converter output, or the battery, into precise regulated sinusoidal wave a.c. power for supporting the critical a.c. load.

B Overload

The inverter shall be capable of supplying current and voltage for overloads exceeding 100% and up to 150% of full load current. A visual indicator and audible alarm shall indicate overload operation. The load shall be immediately transferred to bypass when the load current exceeds this level of overload.

In the event the bypass supply is unavailable (e.g. mains failure), the inverter shall have electronic current-limiting protection to prevent damage to internal components. The inverter shall be self-protecting against any magnitude of connected output overload and the inverter control logic shall sense and disconnect the inverter from the critical a.c. load within 200 mS.

C Output Frequency

The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall hold the inverter output frequency to ± 0.1% for steady state and transient conditions. The inverter shall synchronize with the bypass supply assuming the bypass supply stays within the selected range. If the bypass source fails to remain within the selected range, the inverter shall revert to the internal oscillator.

D Battery over Deep Discharge Protection

To prevent battery damage from deep discharging, the UPS control logic shall monitor the discharge voltage and shut the UPS down at a pre-set minimum dc voltage. This level is dependent on the rate of discharge and battery autonomy and shall be adjusted at the time of commissioning the UPS equipment. Under any circumstances it should not be set to less than 1.67V per cell.

2.2.3 Display and Controls

A General

Each UPS module shall have its own discrete status/alarm panel located on the front door of the system cabinet. The status/alarm panel shall consist of multiple status LEDs, switches, and an alphanumeric LCD display for additional alarm/configuration information. During normal operation (on-line), all mimic display LEDs shall be green in colour and indicate the following:

Line 1 (a.c. Input rectifier)
Line 2 (a.c. Input by-pass)
Battery (Load supplied from the battery)
On Inverter (Load supplied from the inverter)
On Bypass (Load supplied from the by-pass)

A UPS fault shall be identified via additional indicators and audible alarms to notify the user that a UPS fault condition has occurred. During mains failure the colour of the LED’s shall

be as follows:

Line 1 (a.c. Input rectifier) red
Line 2 (a.c. Input by-pass) red
Battery (Load supplied from the battery) green
On Inverter (Load supplied from the inverter) green
On Bypass (Load supplied from the by-pass) off (no colour)
If there is a fault condition, the UPS shall attempt to maintain conditioned power to the load or at minimum transfer to bypass. In addition to a visual fault signal (alarm), the UPS shall also record fault occurrences in a rolling event log. The event log shall record up to 64 occurrences, with the oldest events discarded first, etc. The user shall have access to the event log through the LCD display. Every alarm and/or event recorded in the event log will contain a time and date stamp.

B Audible Alarms

The volume of all audible alarms shall be at least 65 dBA at a distance of one meter. An audible alarm shall be used in conjunction with the LED/LCD display to indicate a change in UPS status.The audible alarms shall warn loss of mains or generator supply, low battery (whilst on battery), and all other alarm conditions. For all audible alarm conditions, the display shall identify the cause of error/alarm. All alarm tones shall be a continual tone until the condition rectifies itself or the alarm is silenced. Once silenced, the audible alarm shall not sound until a new alarm condition is present, but the LED indication shall continue to identify the alarm condition.

C Alarm Silence Button

The display panel shall include an audible alarm 'Reset' switch. If the alarm mute (Reset) switch is pressed for one second, all current audible alarms shall be disabled. If a new alarm occurs, or a cancelled alarm condition disappears and then re-appears, the audible alarm is re-enabled.

D LCD Display

The LCD display shall be used to provide the following information to the user and UPS service engineer:

- Phase Voltages: Input to converter
- Input to by-pass
- UPS output
- Battery DC Voltage (voltage to/from battery)
- Current: UPS output (line current)
- Battery charging/discharging
- Frequency: UPS Input
- UPS output
- Autonomy: Remaining back-up time (minutes)
- Battery capacity (%)
- Others: UPS output active power (kW)
- UPS output reactive power (Kvar)
- UPS output apparent power (kVA)
- UPS load (% per phase)

2.2.4 Automatic Battery Test

The UPS shall initiate an automatic battery testing sequence periodically (default setting once a month), at a programmed day and time of day, selectable by the end user. It shall

be possible for the user to disable the automatic battery test. Should a fault with the battery be detected, the UPS will immediately return to normal mode and a fault status (visual, audible, and remote) shall be indicated. No audible or remote signal indication of the battery test shall be communicated during the duration of the automatic battery test.

The automatic battery test shall operate if no UPS alarm conditions are present and if the battery is at least 90% of its full capacity.

2.2.5 Remote Emergency Power Off (EPO)

The remote 'emergency power off' function (EPO) shall allow the user to immediately shutdown the UPS output supply in an emergency situation. The EPO shall be able to interface with normally closed, volt-free contacts external to the UPS. The EPO connection to the UPS shall be to a clearly identified terminal block type connector.

The UPS EPO shutdown function shall not operate if the UPS internal manual bypass switch is in the bypass position. When the external EPO function has been re-set, manual intervention is required to restart the UPS. The electrical contractor shall include the facility for interfacing the EPO circuit with the supply feed of the UPS and provide a means of disconnecting all sources of power to the UPS.

2.2.6 Standby Generator On contact

The UPS shall have the facility whereby, on receipt of a volt free contact closure start signal from a standby generator supplying the UPS, the UPS system will automatically

- inhibit battery recharge (selectable)
- inhibit transfer to bypass (selectable)

2.2.7 Bypass

A. General

A static bypass circuit shall be provided as an integral part of the UPS module. The bypass control logic shall contain an automatic transfer control circuit that senses the status of the inverter logic signals and operating and alarm conditions. This control circuit shall provide a transfer of the load to the bypass source, without exceeding the transient limits specified herein, when an overload or malfunction occurs within the UPS.

B. Automatic Transfers

The transfer control logic shall automatically activate the bypass, transferring the critical a.c. load to the bypass source, after the transfer logic senses one of the following conditions:

- Inverter overload capacity exceeded
- Inverter over temperature
- UPS fault condition (non redundant configuration)

For inverter overload conditions, the transfer control logic shall inhibit an automatic transfer of the critical load to the bypass source if one of the following conditions exists:

- Inverter/Bypass voltage difference exceeding preset limits (-20/+15 % of nominal load)
- Bypass frequency out of preset limits (± 4 % of nominal frequency)

C. Automatic Retransfer

Retransfer of the critical a.c. load from the bypass source to the inverter output shall be automatically initiated unless inhibited by manual control. The transfer control logic shall inhibit an automatic retransfer of the critical load to the inverter if one of the following conditions exists:

- Bypass out-of-synchronization range with inverter output
- Overload condition exists in excess of inverter full load rating
- UPS fault condition present (non redundant configuration)

D. Manual Transfer

In addition to the UPS module internal static bypass switch, the UPS system shall have an internal manual bypass 'make-before-break' transfer switch. The manual bypass function shall be provided via a switch, which is accessible from the front of the system cabinet and located behind the system cabinet door.

The manual bypass switch shall be electrically interlocked to prevent back-feeding the UPS output in the event of incorrect operation, e.g. transferring the load to bypass via the manual bypass switch when the load ids supplied by the inverter.

The UPS module(s) shall initiate an audible alarm upon transfer to manual bypass.
The audible alarm shall be capable of being muted by the user. The alarm shall continue to sound (unless muted) while in bypass mode. This shall provide a reminder to the user that the load continues to be powered from utility or generator supply alone.

2.3 COMMUNICATIONS

2.3.1 The UPS shall incorporate voltage-free relay contacts suitable for direct communication with either a computer system, remote alarm panel or the clients BMS system and an RS-232 communication port for serial communications and to enable communication via modem equipment.

2.3.2 Relay Contacts

The relay contacts shall be available through via a multi-port connector block comprising of Phoenix Spring terminals suitable for 0.5 mm^2 and shall easily be accessible behind the system cabinet front door. The UPS shall communicate, via volt-free relay changeover contacts, the following status signals:

- Mains Present (normally open)
- Mains Failure (normally closed)
- Load on inverter (normally closed)
- Load on mains (normally open)
- Battery low (normally open)
- Battery OK (normally closed)
- Load on mains (normally open)
- Load on inverter (normally closed)
- Common alarm (system) (normally open)
- No alarm condition (normally closed)
- UPS Module 1 alarm (normally open)
- UPS Module 1 no alarm (normally closed)
- UPS Module 2 alarm (normally open)
- UPS Module 2 no alarm (normally closed)
- UPS Module 3 alarm (normally open)

- UPS Module 3 no alarm (normally closed)
- UPS Module 4 alarm (normally open)
- UPS Module 4 no alarm (normally closed)
- UPS Module 5 alarm (normally open)
- UPS Module 5 no alarm (normally closed)

All the volt free relay changeover contacts shall be rated to a minimum 60Vac, 500mA

2.3.3 Serial Communications

The UPS shall have the facility for communication via an RS-232 port for monitoring and network management integration. As a minimum, the number of ports available shall be as follows:

- RS232 - Sub-D9 1 per system cabinet
- RS232 - Sub-D9 1 per UPS module

2.3.4 Network Communications

The UPS system shall include a facility for installing an optional SNMP adapter card to the UPS to permit one or more network management systems (NMS) to monitor the UPS system in TCP/IP network environments. 10/100 Mbit Ethernet support shall be included.

LIFT INSTALLATIONS PARTICULAR

SPECIFICATIONS

PARTICULAR SPECIFICATIONS FOR LIFT INSTALLATIONS

1. SCOPE

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the Lift works, clean, complete and working to every detail as described in the specification and by related specifications and on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

The Contractor shall be responsible for the supply, delivery, installation, connection, testing and setting to work of the entire Lift system in accordance with the Contract Documents.

The Contractor shall provide all the necessary tools, skilled and un-skilled labour to comply and complete in accordance with the main contractor's works program.

2. STANDARDS & CODES

The Lift shall follow the latest EN81 Standard as a minimum for the lift installations i.e. incorporating:

2.1 **EN81-20/50:2017 -** Safety rules for the construction and installation of lifts. Electric lifts.

2.2 **EN 12015:1998 -** Electromagnetic compatibility. Product family standard for lifts, escalators and passenger conveyors. Emission.

2.3 **EN 12016:2004** - Electromagnetic compatibility. Product family standard for lifts, escalators and moving walks. Immunity.

2.4 **EN81-70** - Safety rules for the construction and installation of lifts. Particular applications for passenger and goods passenger lifts. Accessibility to lifts for persons including persons with disability.

2.5 **EN81-72 -** Safety rules for the construction and installation of Firefighters lift.

2.6 **EN81-58 -** Safety Rules for construction and installation of lifts -Examination and tests Part 58: Landing doors fire resistance test.

2.7 **EN81-73** - Behavior of Elevators in event of fire.

The Lift shall also follow the following Directives and Regulations

2.8 Lift Directive (2014/33/AB)

2.9 Regulation on Elevator Maintenance and Management

2.10 Regulation on the Fire Protection of Buildings.

The Lifts shall also comply with the latest KEBS & Other Government standards as stipulated.

GENERAL PROVISION

The lifts shall be of the traction type and shall serve floors as indicated in Schedules & Specifications.

The Lifts shall be installed to serve all the floors the shaft exists but configured such that particular groups shall be serving specific floors.

3. ENVIRONMENTAL CONDITIONS

3.1 The lifts shall operate in a stand-by mode during off-peak and idle periods. For example the power side of the lift controller and other auxiliary equipment such as lift car lighting and ventilation fan switch shall be off when the lift is not in motion

3.2 Minimum heat dissipation due to the energy consumption shall be provided

3.3 Drive System shall have:

3.3.1 THD shall be <= %3

3.3.2 Line empedance shall be < 50m Ohm

3.4 Traction sheave ropes shall have large diameter to increase life time.

3.5 Amount of epoxy resin for stator winding shall be reduced.

3.6 Steel for balancing weight of traction sheave shall be provided.

3.7 MRL technology shall be used for elevators below 2.5m/s.

3.8 Regenerative drive technology shall be used for elevators with a speed of above 4m/s

3.9 All elevators traction machines shall not need lubrication.

3.10 Gearless drive system with frequency controller shall enable direct power transfer for highly efficient energy usage.

3.11 Major parts should be made of steel and cast iron. Therefore;

3.11.1 DC-commuter carbon brushes shall not be used.

3.11.2 Oil shall not be used.

3.11.3 Brake lining shall be free of any harmful material.

4. LIFTS SPECIFIC DETAILS

The lift specific details shall be as summarized in **"SCHEDULE No. 1"** The bidder is to follow the guideline from the schedule and confirm by filling in the section to be filled by the bidder as a confirmation on the same.

5. TYPE

The lifts shall be electric and must comply with the current edition of the EN Standards safety standards code.

The lifting machine shall be electronically controlled via AC variable voltage, variable frequency, geared machine designed to give fully regulated direct landing approach, with motor, brake and driving sheave assembled on a steel bedplate.

The motor shall be particularly designed for general purpose duties with high starting torque and low starting current.

Sound reducing material shall be installed under the machine and suitable beams shall be provided for mounting the machine above the lift shaft in the machine room at the roof top.

The bidder must provide for a steel structure for both cars and counter weight guide rails.

6. TRAVEL HEIGHTS & LEVELS SERVED

The lift(s) travel height and Levels is as summarized in **"SCHEDULE No. 2"** The bidder is to follow the guideline from the schedule

7. CONTROL (MICROPROCESSOR BASED)

Lift Shall have Microprocessor based controls i.e. individual control, jerk less type with automatic leveling facilities.

NOTE: The Bidder shall submit a brief summary of how their microprocessor shall behave, and shall be called upon to demonstrate at the time of commissioning of the lift that the system behaves as described below.

8. BMS

The lift must be compatible with the Building Management System (BMS) by use of the BACNET IP protocol unless otherwise specified in the schedules. Both the software and hardware necessary for this MUST be supplied with the lift.

Where a different protocol is provided the cost of equipment must include the cost of providing the necessary gateway to convert to BACNET IP protocol with provisions for connection with the existing system in the building included in the costing.

9. MODE OF OPERATION

The lift Mode of Operation shall be as follows:

9.1 Group Car Supervisory

The operation of the lifts shall be capable of group car supervisory full collective with Microprocessor programming unless specifically stated otherwise in schedule No.1 on lift Specific details.

9.2 Time Traffic Monitoring

During morning, mid-day and evening peak times, the computer system shall monitor and analyze all car and hall calls and instantly assign the car to suit an unlimited number of varying passenger traffic patterns created during peak and non-peak periods.

9.3 Traffic Conditions assignment

The system shall respond to traffic conditions and modify its assignment procedures to operate in the following modes.

a) Light/Intermittent/Up-Peak/Down Peak

In the "Light" mode, the car is parked in predetermined zones of the building. The car will park at the main floor car park with its doors open.

b) Intermittent Peak

In the "Intermittent" mode, the car will have split zones at the half-way point with the car serving the floors to which it is closest. Once a car is committed to travel in one direction it will become "Low bidder" for calls ahead, but "High bidder" for calls behind. Hall calls will be assigned to the lowest bidder.

The car will complete service in one direction before reversing and is permitted to reverse at the highest or lowest call. Cars will return to unoccupied parking zones when idle.

c) Down Peak

The "Down-Peak" condition will be detected by monitoring the number of down hall calls, down boarding rates and down lobby arrival loadings. Under down peak traffic, hall calls are grouped in the sequence of registration and assigned to be served in this sequence, and approximate "first-in/first-out" pattern.

d) Up-Peak

The "Up-peak" mode is initiated when the car leaves the main floor in the up-direction with loadings above predetermined level increasing. Cars are permitted to depart from the main floor without predetermined timing.

e) Non-Peak

A "Non-Peak" Situation is recognized when both Up-Peak and Down -Peak conditions are detected. The car sent to the lobby to serve incoming traffic will be reduced compared to pure "Up -Peak" and no limitations will apply to service for downfalls

9.4 Priority Assignment

The simplex supervisory system shall give priority to service designated floors where heavier traffic can be anticipated. The free car will park at these floors in anticipation of passenger requirements. The ground floor shall be regarded as the first priority floor but any floor experiencing a sudden high demand shall immediately be temporarily assigned as a priority floor.

9.5 Car Reservation

A reservation control arrangement shall be provided for each car by means of a key Switch in the car operating panel. By operating this key, a car can be removed from Ground control and be operated by an attendant. When on reservation control, the car shall respond to a car button only.

9.6 Car Hold Time delay

A time delay shall hold the car for an adjustable interval of a few seconds at the landings at which stops are made to enable passengers to enter or leave the car. Pressure of a car button for another landing before this time elapse shall cause the car to start, provided the car door and landing doors are closed.

9.7 Bypass Switch

The lift shall be provided with automatic by-pass device to prevent unnecessary stops when the car is full.

9.8 Safety Controller

The car shall be fitted with a lift system Controller / or safe landing device which shall stop the car and move it to the ground floor landing and open the car doors in case any of any of the safety devices failing to operate or power fails.

The controller must also stop the car whenever excessive descending or ascending speed is attained by cutting off power to the motor and activation of the brake. It shall also be able to bring the car to a stop at the upper ground floor landings independent of the regular operating device in the car.

Final limit switches shall be provided in the hoist way, operated by the car and arranged to stop the car, by cutting off power to the motor, and prevent normal stopping device.

The power packs to the Controller shall be provided with mains charging units which shall maintain them at peak power continually.

9.9 Maintenance Direction Controls

To facilitate inspection, a manually operated switch on the controller connected to "UP"and "Down" directions buttons exposed on the top of the car shall be provided. The switch shall permit the car to be operated at slow speed from the top respond to any calls.

9.10 Self Levelling Controls

The lift shall be provided with a self-leveling/landing feature that will automatically bring the car to the floor landings. The device shall be entirely automatic and independent of the operating device, and shall correct for over-travel or under-travel and rope stretch. The car shall also be maintained approximately level (within 6mm) with the landing, irrespective of load.

9.11 Manual Controls

Provision shall be made for moving the car manually to the nearest landing in case of total failure of lift controller device or in an event of power outage.

10. EMERGENCY LANDING DEVICE

All lifts shall be incorporated with an Automatic Transient safe landing device to stop the lift & move it to the next landing in event of a fault or power outage. The Elevator Emergency Landing Device shall only be in operation during an event of a power failure or blackouts occurring in a building.

Upon power failure, the elevator shall automatically move and stop at the nearest floor using a rechargeable battery (or uninterruptible power supply, UPS), and the doors open to ensure passenger safety.

11. AIR PRESSURE MITIGATION

All lifts above 3m/s (Both Car & Hoist way) shall be incorporated with designs to reduce

Air Pressure Effects i.e. Air pressure designed to have release holes.

12. CAR OPERATING PANEL (COP)

An operating panel shall be fitted into each lift car. The panel shall be mounted flush with the car wall finish and shall be housed in a metal case fitted with silver anodized or a stainless steel case.

The COP shall include paraplegic facilities i.e.:

i. All call buttons shall include instructions in Braille for the visually impaired
ii. Panel shall be at a height where it can be operated from a wheelchair
iii. Panel shall be incorporated with voice command for the visually impaired
iv. Panel shall have incorporated visual graphics for the hearing impaired

The COP shall comprise of: -

(a) A series of electronic touch buttons corresponding to the landings served. Each button shall illuminate to show the floor for which a car dispatch call is registered.

(b) Switches for fan and lights.

(c) Door OPEN button

(d) Door CLOSE button

(e) Overload indicator

(f) Alarm button connected to a battery powered intercom systems

(g) Intercom system

(h) Car lights must be off when the lift is at standstill

(i) Key switches to control;

- Fire master Control
- Independent service

As stated in the "CONTROL (MICROPROCESSOR BASED)" section above, the lift must be BMS compatible and ready. Both the software and hardware necessary for this must be supplied with the lift.

13. CAR POSITION AND DIRECTION INDICATOR

A self-illuminated car position and direction indicator housed in a steel case, shall be mounted in the car door header and fitted with stainless steel cover plate. It shall be fitted at such an angle that it is easily visible and legible to any passenger in a full cabin. The display digits shall have a minimum height of 40 mm.

A similar direction indicator shall be mounted above each of the landing doors.

The lift to include voice synthesizers to give audible voice prompts giving the direction of travel, the opening and closing of doors and any other information useful to a visually impaired person.

14. LANDING CALL BUTTONS

At each landing, one stainless steel flush-mounted panel, with a set of electronic touch buttons each for "Up" and "Down" shall be provided, having both visual and brailed signage. The buttons must light up when a call is registered. Direction arrow lights to be incorporated in all landing button plates, arranged so that when a button is pressed the corresponding arrow will illuminate indicating the direction of the call which is registered.

LIFT DOORS (CAR & LANDING)

15. LANDING & CAR DOORS TYPE

The doors shall be fully automatic two panels, center opening high speed sliding doors unless otherwise stated in the schedules

16. DOOR OPERATOR (CAR AND LANDING)

The Door Operator shall comprise of the following features:

(a) An electric door operator shall be provided to open simultaneously the car and landing doors when the car is approximately 200mm from a landing. The operator shall be self-contained computer compatible electronic controlled drive system capable of communicating with the lift microprocessor equipment and passenger sensors and independently execute the opening and closing commands door. It shall have programmed closing and opening doors speeds that shall be traffic dependent. Highest door speeds shall be used during intensive peak traffic. Thus the opening, closing and dwell times shall be fully adjustable for speed and time.

(b) The door dwell time shall be automatically reduced to approximately one second when a car floor button is pressed; also when a passenger leaves the car at his destination even when no incoming passenger presses a new car floor button.

(c) Emergency key provision shall be made to open doors to all landings from outside the hoist way. It shall also be possible to open the doors manually from within the car, provided the car is within the landing zone.

(d) An electronic contact for the lift car door shall be provided which shall prevent the lift movement away from the landing unless the car and landing doors are in the closed position. The landing door shall be equipped with a positive electro-mechanical interlock and auxiliary door closing device so that the lift can be operated only after the interlock circuit is established.

(e) Should the load on the car exceed the maximum load, the car and landing doors shall not close, and an audible alarm shall be sounded.

(f) The doors shall open automatically while the car is leveling at the respective landing. The doors shall automatically close after programmable traffic dependent time interval has elapsed; but momentary pressure on the "Door Open" button installed in the car shall reverse the motion and re-open the doors and reset the time interval.

(g) The car landing door leading edge shall be provided with protective electronic sensing device extending the full height and projecting beyond the front edge of the door. This device shall be so arranged that, should it sense a person or any obstruction in its path while the doors are closing, it shall automatically cause both the car and the landing door to return to open position. The zone of protection shall be at least 100 mm in advance of the car and landing door edges.

(h) Each car shall be equipped with sensor detecting passenger movements on the landing in front of the car, also when the car door is only partly open.

(i) To prevent accidents when passengers intentionally put their hands between the doors to cause re-openings at least one detector shall cover the whole door area and remain active until the door is fully closed. The passenger detector and the electronic safety edge shall complement each other in such a way that should one fall, the other alone will assure a safe and comfortable door operation.

(j) In intensive traffic situations when the lift stops for car call only and the probability exists that only one or a few of the passengers will leave the car, the doors shall be capable of partial opening to provide for faster operation and optimum use of transportation capacity. Partial opening to be at least 800mm.

(k) There shall be an invisible frequency source (e.g. infra-red rays) arrangement projecting a beam of electromagnetic waves across the lift car entrance. After a stop is made, the door shall remain open, as stated above, for a predetermined interval which should be adjustable, unless closing is initiated sooner by the interruption and re-establishment of the beam. The doors shall be prevented from closing as long as either beam is interrupted or the car door protective device is actuated, except as provided below.

(l) If, while the doors are closing either electromagnetic wave beam is interrupted by a passenger entering or leaving the car, or the car door protective device is actuated, the doors shall stop and re-open, after which the doors shall again start to close.

(m) The lift shall be fitted with an audible sounder that shall be triggered as and when the car and landing doors commence to swing open at a landing stop.

(n) Nudging - If the doors are held open for a predetermined time (15 to 20 seconds; adjustable) by interrupting the light rays/detector “site”, or by holding the door, or by pressing the door open button, a buzzer will sound and the doors shall start to close at a gentle slow speed.

17. LANDING DOORS & ARCHITRAVES

17.1 Doors

The doors shall be programmable high speed center opening as described above and shall have at least half an hour fire resistance. Copies of fire test certificate shall be submitted for the Engineer's approval prior to the installation of the doors.

The doors finishes shall be as per “Schedule No. 8”

The door shall have a suitable lining shall be used to avoid metallic ring all joints shall be reinforced, welded and finished flush and, where necessary, be reinforced to take hangers, closers hooks etc.

The doors shall be fitted with rubber bumpers at the back to avoid banging on the door frame when the door is fully open.

The door frames shall combine cabinets’ jambs and strips, still tract hanger housing and smooth running of doors. Non-slip treads shall be provided where necessary.

On site, the architrave and landing doors shall be painted by at least three coats of high quality gloss paint of an approved color if required.

The sills shall have metallic self-cleansing groove to receive the door guides rubbing between guides and sill groove and shall be at minimum to ensure smooth and quiet operation.

The clearance between the car and landing sill shall be 20 mm maximum.

17.2 Architraves

Architraves shall be supplied for all lifts, and shall be imported together with the lifts unless specifically stated otherwise in the schedules attached to this document.

Locally manufactured architraves SHALL NOT BE acceptable.

Architrave finishes shall be as per **"Schedule No. 3"**

Architraves shall be pressed to shape, and made integral to suit the full wall thickness and shall be subjected to approval by the Engineer.

17.3 Landing Door Installations

Each landing door shall be equipped with main and emergency electro-mechanical interlocks operated by a retiring cam or other approved device on the car which shall prevent the car moving away from the landing unless all doors are in closed position.

The interlocks shall also prevent the opening of any landing door until the car has reached the landing.

18. CAR DOORS

The doors shall be two speed electrically controlled A.C. motor driven center opening doors.

The door shall be fully automatic, power operated and cushioned so as to prevent slamming at the limits of movements.

The doors shall be of the hollow metal type pressed to shape and rolled so that it does not give sharp edges to AISI 304 or as specified in the in the car finishes and fittings schedule.

The door shall have a suitable lining shall be used to avoid metallic ring. All joints shall be reinforced, welded and finished flush and where necessary shall be reinforced to take hangers, closers, hooks, etc.

CAR INSTALLATIONS

19. CAR FRAME

The car frame supporting the car platform and car superstructure shall be made of heavy duty solid structural steel designed for general purpose elevator, and shall be fitted with guides and safety devices mounted underneath the car platform. The steel shall be zinc coated at the factory. The car frame shall be braced and gusseted to relieve the car superstructure of strain. Application of the safety gear or uneven loading of the car shall not deform the car frame.

20. CAR FINISHES & FITTINGS

The car finishes are as summarized in **"SCHEDULE No. 3"**.

The bidder is to follow the guideline from the schedule and confirm by filling in the section to be filled by the bidder on the same or an equivalent to what is specified.

The following is a guideline on the same.

20.1 General

The car shall be constructed from pressed sheet steel. The methods of construction and strength of the lift cars and the door panels shall comply with B.S. 2655; part 1: 1970 and current amendments. The top of the car shall be covered in the sheet steel capable of withstanding a load of 37kg per square meter of surface

20.2 Skirting

The car should have a skirting provided around the inside perimeter of the cars as specified in "Schedule No.8"

20.3 Hand Rail

A hand rail shall be provided inside the car at a height of 975 mm as specified in "Schedule No.8"

20.4 Floor Covering

A floor covering shall be provided in the car as specified in "Schedule No. 8". The material used should be Non-slip.

The color and type of finish should be approved by the Engineers/Architects before ordering.

20.5 Ventilation

Ventilation shall be adequate, indirect and free from draughts an extract fan shall be provided which shall have sleeve bearings and be quiet in operation. The fan must be multi directional and super silent.

Ventilation openings in the car itself particularly in the upper portion shall not render the extract fan ineffective in providing forced ventilation of the car.

20.6 Car Interior Lighting

Appropriate car lighting should be provided to give the required illumination levels inside the car.

Car lighting shall be >60Lumens per Watt.

All lighting shall be of LED or energy saving as per “Schedule No. 8”

Light fittings shall be installed in the false ceiling of the car.

20.7 Car Emergency Lighting

In addition, the car should contain at least 2 No. self-charging non-maintained emergency lighting fitting with a minimum of 3-hour autonomy which shall be installed at the roof of the car. The light shall automatically light in the event of the power failure.

21. TOP OF CAR ACCESSORIES

a) The car top shall be kept free of all except the most necessary equipment and length of conduit runs shall be kept to a minimum.

The top shall be designed to carry the weight of at least two men.

b) An engineer's maintenance control station on top of the car shall be provided, consisting of adequate lighting (which can be on and off), and a proper socket outlet to power other maintenance equipment e.g. drilling machines, extension lead, blower etc.

c) Test up and down push buttons shall be as provided on a panel located on top of the car door for operation during maintenance work.

d) When the station is switched to inspection, the Elevator speed shall not exceed 0.63 m/s and all operating devices in the cab shall be inoperative.

22. LIFT SHAFT INSTALLATIONS

22.1 Guide Rails

Guide rails for the car and counter weights shall be T-Section steel guide rails planned on three edges with Tongue & grooved joints for the car and counterweight. Rails shall be placed accurately and fixed firmly to the shaft walls with sufficient spacing between brackets. Rails shall be of a size as recommended by the EN81-20/50 standard and nothing smaller.

The fixing of rails and connection between two or more sections of rail shall be in such a manner that the straight and vertical position is not influenced by changes in temperature or ordinary settlement of the structure.

22.2 Car & Counter Weight Guiding Shoes

Spring loaded roller type of guide shoes mounted on ball bearings shall be supplied and installed on both the car and counterweight. Each wheel shall be provided with a renewable solid neoprene type and shall be accurately aligned to achieve smooth rolling action

22.3 Counterweight

A suitable adjustable counter weight shall be fitted and installed for each lift. The filler weights shall be of cast iron of known weight securely housed in a rigid fabricated frame fitted with four guide shoes. The counter weights for panoramic lift must be concealed at the back.

22.4 Terminal Buffers

Hydraulic, energy absorbing spring return buffers or robust design shall be installed in the pits under each car and its counter weight. The buffers shall bring the car to a stop should the car or counterweight overrun, without permanent damage or deformation when the lift is operating at 10% above the contract speed and 10% in excess of the Contract load. The buffers shall be of self-resetting type. The Contractor shall provide to the Engineer manufacturer's certificates for scrutiny and retention.

22.5 Terminal & Final Limits

The car shall be slowed down and stopped automatically at the terminal landings. Should the car travel beyond the terminal landings, final lift shaft limit switches shall automatically cut off the power to the motor and controller and apply the lift machine's brakes. These switches shall not depend on the action of a spring for their operation.

22.6 Other Provisions in Shaft

i) Lighting or provision for lighting shall be allowed for in the shaft to assist maintenance personnel. The lights shall be controlled by two way switches mounted on top and bottom entrances.

ii) An emergency stop switch shall be provided in the shaft for maintenance purposes. The position of the switch shall be such that it can be easily switched off before getting into the shaft.

iii) A screen shall be provided to seal off the counterweight so that nobody can gain access to its path. A red engraved sign written "DANGER-BEWARE OF DESCENDING COUNTERWEIGHT" shall be fitted on the screen.

iv) The screen should cover the full length of the counterweight at midway point of the shaft so that the chances of the counterweight knocking someone working on the car are reduced to a minimum.

v) All the rotating pulleys (diverted, main sheave, etc.) shall be covered such that nobody is in danger of being trapped between the ropes and the pulley when the lift is in motion and the rotating parts should be painted yellow.

23. LIFT MACHINERY

23.1 Motor Drive System

Bidders shall be required to give details of the Machine Room and Operational details to be enclosed

NOTE:

CARS QUOTED MUST BE MACHINEROOMLESS UNLESS THE BIDDER ATTACHES CONTRAINDICATION DATA FROM THE MANUFACTURER ON THE SAME

The lifting machinery shall be located appropriately as per manufacturer's recommendation. The motor shall be of the screened silent type with 2 speed winding capable of a minimum of 180 starts per hour continuously. The motor shall comply with B.S. 2617: 1957 and bear the actual manufacturer's name plates. They shall be tested at the manufacturer's works for insulation resistance. The direction of rotation of the motor for "UP" and DOWN" motion of the car shall be indicated by an engraved label fixed by four screws to the frame of the motor.

Direct floor approach without a creeping speed is required. A maximum tolerance of 5 mm shall be guaranteed.

The running speed between floors shall be the maximum attainable relative to the distance traveled, a fixed secondary speed for shorter journeys is not acceptable.

Smooth and accurate stopping will be achieved by the injection of D.C. current into the secondary winding. To achieve minimum power consumption, the motor system will be capable of smooth operation without the fitting of a flywheel or other mass weight.

The drive system shall be capable of fast single floor speeds and shall not utilized only the slow speed winding on single floor jumps. The tenderer will fully describe the system offered.

The proposed drive system shall not utilize field weakening. Dynamic braking shall not be utilized. If it is used all main D.C. current circuit components shall be solid state.

The drive system shall be capable of operating the car and inspection made without the lift control computer being active. When active, it shall monitor the operation, collect statistics and display the car position.

The motor shall be provided with a manually operated turning device for lowering the car to the nearest landing in case the automatic controller fails in the event of power failure. The system must prevent engaging of the turning device, until the power supply for the motor is switched off.

The machinery and controllers shall be placed on vibration dampers in the machine room above the lift shaft. Any steel structures or supporting beams for machinery are included in the Contract. If the Contractor finds it necessary to place the machinery on special concrete foundation these will be furnished to the Engineer, but the Contractor must produce sufficient drawings for such work. The aggregate must be dimensioned for the full load in continuous operation and for a temporary overload of 10%.

23.2 Brakes

The brakes shall be spring applied and shall be fitted with two springs. Self-aligning easily adjustable shoes with renewable linings shall be provided. The brakes shall operate on a brake pulley forming part of the driving shaft and shall be electrically released using a D.C. solenoid. The brake system will only act as holding brakes in normal operation. Deceleration will normally be carried out by the variable voltage control system.

23.3 Hoisting Ropes

The lifts shall be provided with suitable car and counter-weight hoisting ropes manufactured, tested and handled in accordance with the relevant British Standards.

A test shall be made at the manufacturer's workshop for tension, tensile and breaking load of the rope as set out in relevant British or French Standards and the Contractor shall supply certified copies of test certificates to the Engineer. Sheaves shall be made of best grade iron, turned true and grooved for the ropes.

23.4 Sheaves

The sheaves shall be of ample diameter for the ropes used. The traction shall be accurately machined from a semi-steel casting, properly grooved for the appropriate number and size of hoist ropes, of ample diameter.

The diverting sheave and the lift and counterweight sheaves shall comply with the same requirements as the traction sheave and shall be either of semi-steel or best grade close-grained cast iron.

The traction sheave, brake pulley and drive motor armature shall be mounted on a single one-piece sheave shaft turned from a single heat-treated steel bar. Beams shall be sound insulated from structure parts.

23.5 Electrical Installation

All motors and switchgear shall be rated for operating at 240/415V 50 Hertz A.C power supply.

The installation must comply with the IEE regulations. All wiring shall be carried out in a neat and orderly manner. Cable run on walls all or ceilings to be in a straight line and right angle bends enclosed in steel ducting.

Connections to equipment more than 400 mm from walls shall be run from the wall in conduit cast in the floor to a connector box fixed upright adjacent to the equipment and through flexible conduit to the equipment.

All electrical switchgear must be clearly labeled. The trailing cable shall be of stranded flame proof lift type and flexible; so installed as to prevent mechanical stress on conductors and terminations. It shall be free from twist, kinks, abrasion and any other mechanical damage.

23.6 Alarm Emergency System

An alarm button in the car shall simultaneously activate an audible alarm situated on the car, and supervisory board near reception desk. The alarm shall be supplied with back up rechargeable battery electricity from a Maintained trickle changer supplied by the Contractor. All wiring and installation of the alarm and intercom system shall be done by the Contractor.

23.7 Car Safety Device Governors

A sliding or approved type of car safety device shall be mounted beneath each car platform. The safety device shall be operated by a centrifugal speed governor to which it shall be connected through a continuous stranded steel rope. The governor shall be located on the machine platform. Prior to the application of the safety device all electric power shall be positively cut off from the lift motor. The gradual application of the safety device shall bring the car to a smooth sliding stop.

The following safety devices shall also be incorporated: -

i) Car door closing-force limiter to prevent accidents.

ii) Emergency unlocking of the car door from the landing for evacuation as well as for maintenance using special key.

23.8 Controller

The controller shall be enclosed in a freestanding floor mounted and totally enclosed steel framed cabinet with hinged doors at the front and detachable panel at the rear. All the necessary relays, contactors, meters, fuses, rectifiers, resistors, etc. forming part of the controller shall be accessible from both the front and rear. All components shall be clearly labeled as to their function and shall readily be accessible for easy maintenance and inspection.

23.9 Manual Operation

As stated under Safety Devices, a provision shall be made for manual lifting and lowering of the lift by means of spoke less wheel of flywheel permanently fixed at the end of the hoisting motor shaft. The wheel, where it is not fitted permanently to the motor, shall be mounted on a tool board together with the brake-release lever. The landing door emergency key shall be supplied and fixed by the Contractor.

23.10 Testing and Commissioning

The contractor/supplier shall supply at his own cost all test equipment necessary for the testing and commissioning of the system. The contractor/supplier shall provide the personnel to do the necessary tests and commissioning and shall notify the Engineer and all other before the commencement of tests.

All necessary tests including safety-gear test at full load in the car shall be carried out. Two copies of certified tests results shall be forwarded to the Engineer before handing over the lift installation.

23.11 Statutory Inspection

Inspection and registration of the lifts shall be carried out by an authorized government inspector who shall prepare a certificate before the acceptance by the engineer. The inspector must be approved / appointed by the Services Engineer/client. All the associated cost shall be met from the contract sum.

23.12 Fireman's switch.

The lift shall come complete with a Fireman's switch and any other related necessary controls and accessories for fireman's use in the event of fire.

23.13 Elevator controls.

The emergency controls and door operating controls shall be grouped together at the bottom of the control panel for ease of access by the physically challenged in a wheel chair.

The center line of the Emergency stop button shall not be less than 890mm from the lift car floor while the center line of the highest button shall not be more than 1370mm high from the car floor.

Arabic numerals shall be adjacent preferably to the left of the operating buttons on a distinct contrasting background.

The Braille version of all controls should be added to all of the interior and exterior call buttons and controls to enable the visually impaired travel independently.

The control panel shall be located on the front wall of the next to the entrance.

LIFT SPECIFIC DETAILS

NOTE: To be read in Conjunction with the Particular Specifications

A Engineers Specifications

ITEM	DESCRIPTION	LIFT DETAILS

A1 GENERAL SPECIFICATIONS

a1.01	Lift Nomenclature	Conventional
a1.02	Type of Lift	Platform lift
a1.03	Special Requirements	Normal
a1.04	No Of Lifts	1 No.
a1.05	Capacity (Occupancy)	1+1Pax
a1.06	Capacity (Weight)	300Kgs
a1.07	Travel (m)	4m
a1.08	No. of Stops / openings (Installed)	1Landing
a1.09	No. of Stops / openings (Configured)	1 Stop

A2 DRIVE SPECIFICATIONS

a2.01	Drive (Motor) System	Machine Roomless
a2.02	Engine Type	VVVF
a2.03	Speed (m/s) - Minimum	0.1m/s
a2.04	Acceleration (m/s) - Min	

A3 SHAFT SPECIFICATIONS

a3.01	Shaft Dimensions	ESTIMATED SINGLE SHAFT DIMMENSIONS
		W = 1400mm
		D = 2130mm
a3.02	Pit Depth	-

A4 CABIN SPECIFICATIONS

a4.01	Car (Cabin) Access	1No. Access
a4.02	Car (Cabin) Height	
a4.03	Car (Cabin) Height - Internal Clear	2,150

ITEM	DESCRIPTION	LIFT DETAILS
a4.04	Car Fit-Out Decoration Allowance	Factory Fitted
a4.05	Car Floor Finish Allowance	Factory Fitted

A5 DOOR SPECIFICATIONS

A5.03	Door Opening Required (Minimum)	W = 900mm H = 1100mm

A6 LANDING OPERATING PANEL

a6.01	Finish on Buttons	Stainless Steel
a6.02	Braille Input on Buttons	Required
a6.03	Buttons Illumination	Required

A7 OPERATION FUNCTIONS

a7.01	Automatic Power Off in Idle Mode	Required
a7.02	Car Call Cancellation	Required
a7.03	Attendant Service / Manual Operation	Required
a7.04	Air pressure control system	Not Required

A8 SAFETY FUNCTIONS

a8.01	Counter-weight Safety Gear	Not Required
a8.02	Door light curtain protection/Sensor	Required
a8.03	Cabin Emergency Light	Required
a8.04	Emergency Power Operation	Required
a8.05	Emergency alarm function	Required

B1 *Bidders Specific Particulars for model (MUST Be Filled By Bidder)*

ITEM	DESCRIPTION	LIFT DETAILS
b1.01	**Lift Model**	
b1.02	**Lift Code**	
b1.03	**Proposed Shaft Dimensions (mm)**	W =
		D =
b1.04	**Car Cabin Dimmensions (mm)**	W =
		D =
		H =
b1.05	**Pit Depth (mm)**	
b1.06	**Machine room Height (From Last slab)**	
b1.07	**Power Rating (KW): For Each Lift**	
b1.08	**Voltage Range (V)**	
b1.09	**Starting Current (A) - For Each Lift**	
b1.10	**Operating Current (A) - For Each Lift**	
b1.11	**Power Factor**	

LIFT INSTALLATIONS

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the works, clean, complete and working to every detail as described below and in the related specifications and /or on the drawings to the satisfaction of the Consulting Engineers.

Technical product catalogues and specifications for quoted models to be attached

NOTES: Please note that the Lifts shall be:

1 Lifts including doors (Car & Landing) shall be Electrically driven & electronically controlled via AC variable voltage with full length infrared sensor for the door as described.

2 Lifts shall have Variable voltage variable frequency geared machine designed such as to give fully regulated landing approach

3 All Lifts to come complete with their computer control equipment, hoists and counter-weights.

4 Car to be complete with hoistway doors & entrances, necessary control and power cables,

5 Car to be complete with installations materials and all accessories and complying with the specification

6 The imported and local components to be apportioned in pricing as outlined in the schedules.

7 Passenger standing on any floor will have the benefit of viewing on the display the movement and position of the lift .

8 All lifts to come with the Detachable canvas for Protection. Canvas should have factory fabricated provision for hooking canvas. (Lift Hooks shall be as DOT Studs Mechanically fixed with bolts & nuts)

9 Lift to come factory fitted with own power factor correction [PFC] to 0.98 or better.

10 Lift to have its own automatic voltage stabilizer and Transcient voltage surge suppression circuitry.

11 All lifts above 3m/s (Both Car & Hoistway) shall be incorporated with designs to Mitigate Air Pressure Effects / Imbalance

Total amount in words: Kshs_____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.:_____V.A.T. Reg. No. : _____

Signed by:_____Date _____

PARTICULAR SPECIFICATIONS

ICT & SECURITY INSTALLATIONS

STRUCTURED CABLING PARTICULAR SPECIFICATIONS

PARTICULAR SPECIFICATIONS FOR STRUCTURED CABLING INSTALLATIONS

23. SCOPE

The scope of the contract is twofold namely supply, deliver, install, test and provide certification for a complete and fully operational structured cabling system and to perform the disconnections, removal, relocations etc. of the existing telephone and computer installations.

This will involve backbone connection from the server in the Computer room to the new GIBIC/switches and Horizontal cabling from the administration cabinet

The structured cabling shall be of star topology.

The entire installation shall be purely Cat 6A (Unless Otherwise stated in the Bills of Quantities) structured cabling.

All necessary accessories shall be inclusive.

24. DEFINITIONS & INTEPRATION OF ICT TERMS

The terms, phrases and abbreviations shall be deemed to have the following meanings wherever used hereinafter and in all contract documents.

Data Point: Shall in the case mean an installation complete with data cable linked from the patch panel in the respective area cabinet to the outlet via the pathways installed by others to close proximity of the desk but excluding the faceplate.

Telephone / Voice Point: Shall in the case mean an installation complete with telephone cable linked from the patch panel in the respective area cabinet to the outlet via the pathways installed by others to close proximity of the desk but excluding the faceplate.

25. DATA OUTLETS & CABLING

Data outlets cabling shall be as CAT 6A UTP requirements and as specified in ISO 11801.

The data outlets cabling shall be drawn in trunking or conduits and the points mounted on trunking faceplates, wall recessed patress boxes, floor outlet communications stations, floor mounted pedestals or floor boxes.

The trunking and pedestals are to be supplied and installed by others unless otherwise specified in bills of quantities.

The UTP data outlet jacks shall feature 110, Krone LSA or universal style insulation displacement connectors.

The same tools required for termination of the patch panels shall be used for the data jacks.

All the Cat 6A Snap-in data jacks shall be fully compliant with category 6A TSB 40A requirements.

26. TELEPHONE OUTLETS & CABLING

This shall involve drawing of telephone multicore cable from the supply undertaking termination point to the main distribution center and the necessary terminations from the distribution terminal to the administration cabinet.

Cabling shall be done to the various RJ45 work area outlets using Cat 6A UTP or SC TP 4 pair stranded cable.

The telephone outlets cabling shall be drawn in trunking or conduits and the points mounted on trunking faceplates, wall recessed patress boxes, floor outlet communications stations, floor mounted pedestals or floor boxes.

The trunking and pedestals are to be supplied and installed by others unless otherwise specified in bills of quantities.

The UTP data outlet jacks shall feature 110, Krone LSA or universal style insulation displacement connectors.

The same tools required for termination of the patch panels shall be used for the data jacks.

All the Cat 6A Snap-in data jacks shall be fully compliant with category 6A TSB 40A requirements.

27. BACKBONE & HORIZONTAL CABLING

Cat 6A, Unscreened Twisted pair (UTP) 4 pair Copper cables conforming to EIA/TIA 568A and ISO 11801 Standards, radiate from the administration cabinet in the server room to the various works areas.

Cat 6A UTP 4 pair copper cables should be laid in trunking / Conduits from the Hubs to the data outlets.

Cat 6A UTP 4 pair copper cables should be laid in trunking / conduits from the patch panels to the telephone outlets as shown on the drawing.

Cable installations should be carried out by trained cable technicians skilled in the installation of telecommunications cables and use of associated tools such as IDC punch down tools and hand cables held cable testers.

Maximum pulling forces should not be infringed during installation to avoid cable damage or performance impairment. Recommended minimum bending radius during and after installation should be adhered to.

It is important to minimize the twisting of cable during installation and cables must never be laid off over the flange of a cable reel.

During installation, cable management precautions that should be observed include the elimination of cable stress caused by tension, sharp bends and tightly bunched cables.

Cables should be dressed into neat groups and fixed into place whether in trunking, cable tray or cabinet, using nylon cable ties. Cable ties should be fitted at 300mm centers and should be fitted with just enough tension, such as not to deform cables.

Installed cables should be clearly identified at both ends with printed self-laminated wrap round labels.

During installation and subsequently, care should be taken to prevent damage to the cabling and especially where cables are exposed in cable trays.

28. PATCHCORDS

All Patch cords shall be factory fabricated

CAT 6A stranded 4 pair UTP RJ45 connector terminated cables shall be provided as per the specified lengths in the bills of quantities

29. PATCH PANELS

Cat 6A UTP patch panels shall be used.

Patch Panels shall be able to fit into any standard 19-inch equipment rack, secured to the rack firmly with nuts and bolts at all the four corners.

30. NETWORK SWITCHES

The network switches used shall be able to support Gigabit speeds and will have power over Ethernet capability, UTP Star cabling topology, preferably a switching hub capable of being set up as a Virtual LAN (V-LAN) and compatible with any existing LAN Management devices.

The new network switches should have a minimum of (24No) twenty-four UTP cable connections employing standard RJ45 female connectors plus one (1No.) GIBIC Fast Ethernet port for stacking or connecting to the backbone.

All the ports shall be individually numbered.

31. EQUIPMENT CABINETS

The work-group network or switches and patch panels arrangement shall be housed in an equipment cabinet/rack to be supplied by the sub – contractor to be appointed.

The cabinet should be constructed to enhance cooling and ventilation.

Cabinets shall be required to have the following:

a) Front Doors
   - For Server room Free Standing cabinets, the front door shall be perforated (75%) Arc-Fold with Swing
   - For other wall mount cabinets, the front door shall be made of Tempered glass

b) Rear Doors
   - For Free Standing Cabinets they shall have 1 x Double-section Full Perforation with Swing Handle Lock (Hexagon Honey-Comb)

c) Side doors
   - For Free Standing Cabinets they shall have 2 x Lift Off Type with Quick Release Catch & Cam Lock
   - For Wall Mounted Cabinets they shall have 2 x Lift Off Type with Quick Release Catch & Cam Lock

d) Top Tray - 6 x 4-inch Top Fan Tray with Guard & Filter (Low Noise)

e) Frame – Shall be Full Vented Top Frame with Front / Rear / Side Cable Entrance

f) Finish – Shall be as Epoxy Powder Coating (RAL 9004 Black)

g) Complete with Cable Management, Lock & Key, Panel Mounts, Base frame with provision for cable entrance, Set of Heavy Duty Castor wheels, Set of Levelling stands

h) 12 Way Power Distribution unit with 13A UK Sockets for 240V and all other accessories required.

32. EARTHING

All data equipment cabinets must be earthed for safety.

All earth conductors shall be colour coded as green or green & yellow insulated

All earth conductors shall be made of copper.

Each cabinet must have its own specific conductor connecting it to earth. Serial connections from one cabinet to another are not allowed.

Each patch panel installed in the data cabinet should also be earthed to the cabinet using a separate conductor.

33. TESTING

The installation shall be Tested and Certified CAT 6A compliant per ISO 11801 requirements.

The test must include but not limited to:

- Basic link test
- Attenuation
- Attenuation to Cross Talk Ratio (ACR)
- Near End Cross Talk (NEXT)
- Wire map
- Cable length
- Impedance

Every single cable must be tested in both directions.

-

-

2 SPECIAL NOTES TO ALL STRUCTURED CABLING TENDERERS

1. **CONTRACT TYPE:** This is a fixed price Contract and no claims shall be entertained on whatever ground. The Contractor is advised to include all such costs as he projects may arise in his unit rates. Any variations in the exchange rate will also be no excuse for any variations in the contract sum.

2. **COPYRIGHT:** The copyright of this specification is vested in the Engineers and no part thereof may be reproduced without their express permission, given in writing.

3. **CURRENCY:** The specifications must be priced in Kenya Currency i.e. Shillings and Cents unless Otherwise as may be expressly stated

4. **QUALIFICATION:** The tenderer shall not otherwise qualify the text of this specification. Any alteration or qualification made without authority will be ignored and the text of the specification as printed adhered to.

5. **BILLS OF QUANTITIES:** The Bills shall be read in conjunction with the Preliminaries, General Conditions of Contract, Technical Specifications and Drawings

6. **PAGES IN DOCUMENT:** The tenderer is required to check the number of pages in this document and should any be found to be missing or the figures indistinct, he/she must inform the Engineers at once and have the same rectified. Should the tenderer be in doubt the precise meaning of any item, word or figures or for any reason whatsoever observe any apparent omission of words or figures, he must inform the Engineers in order that the correct meaning may be decided upon before the date for the submission of the tenders.

7. **RATES & PRICES:** The rates and prices tendered in the priced Bills of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Plant, equipment, labor, supervision, materials, erection, maintenance, insurance, profit, together with all general risks, liabilities and obligations set out or implied in the Contract, including taxes and duties (including V.A.T). The quantities given are provisional and are for guidance only. The whole works shall be re-measured upon practical completion.

8. **FILLING OF RATES:** A rate or price shall be entered against each item in the priced Bills of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bills of Quantities.

9. **PRICE ALLOWANCES:** The tenderer shall be deemed to have made allowances in his unit prices generally to cover items of preliminaries or additions to prime cost Sums or other items priced against the respective items.

10. **TAXES:** The tenderer's price shall include all government taxes including duties, VAT, etc. No claims whatsoever will be allowed if the tenderer does not price them as aforementioned. VAT must be calculated for all sums as filled in the document which includes contingencies, PC Sums etc.

11. **COST:** The whole cost of complying with the provision of the Contract shall be included in the Items provided in the Bills of Quantities, and where no items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

12. **TENDER EXPENSES:** In no case will expense incurred by the tenderer in preparation of this tender be reimbursed.
13. **REFERENCES:** General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. Reference to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bills of Quantities.

14. **PC SUMMS & CONTINGENCIES:** Provisional Sums and contingencies included and so designated in the Bills of Quantities shall be expended in whole or in part at the sole discretion of the Engineer.

    Under no circumstances shall the contingencies in the BQ be used to cater for contractor's omissions or underquoting of items listed in the Bills.

    Under no Circumstances shall the contractor claim any costs e.g. profits, attendance, etc. connected to the PC sums and contingencies if the client were to remove the PC Sum item

15. **ERRORS:** No liability whatsoever will be admitted nor claim allowed in respect of errors in the completed tender due to mistakes in this document which should have been rectified in the manner described above.

    Errors in pricing will be corrected by the Engineer for any arithmetic errors in computation or summation as follows: -

    a) Where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and

    b) Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Engineer, there is an obviously gross misplacement of the decimal point in the unit prices, in which event the total amount as quoted will govern and the unit rate will be corrected.

16. **MATERIALS ORDERING:** The Contractors shall be solely responsible for the accurate ordering of materials in accordance with the drawings and these specifications.

17. **CLIENT SUPPLY ITEMS:** The client has the right to choose between the contractor to supply specific fittings / items as specified and the fittings / items being a direct procurement by the client.

    Under no Circumstances shall the contractor claim any costs e.g. profits, attendance, etc. connected to the "Client Supplied" items if the client were to Omit any items noted as "Client Supply" in the Bills

Signed (As in form of Tender) _____

Official Stamp & Date _____

SECURITY PARTICULAR SPECIFICATIONS

PARTICULAR SPECIFICATIONS FOR SECURITY INSTALLATIONS

CCTV PARTICULAR SPECIFICATIONS

SPECIFIC NOTES TO TENDERERS

EXTENT OF INSALLATION

The Contractor shall carry out all the necessary works for successful installation of the services mentioned as described and set out in the technical specifications, Bills of Quantities and accompanying drawings to the satisfaction of the consulting engineers.

This will include the supply & delivery of equipment, fix, install, connect, test, label, commissioning & the associated labour to a clean and neat working system that meets every detail as described in the specification

WARRANTY

- All equipment supplied under the scope, including all associated installations shall be warranted by the manufacturer against electronic failure for the duration specified in the specifications and if possible, a lifetime warranted against Electronic & Programming failure. ("Lifetime" means that if the electronics & programming should fail at any time it will always be replaced).

- The **bidder to specify the recommended lifespan (if any)** of the system by which date replacement of the entire system is recommended.

SYSTEM SPECIFICATIONS

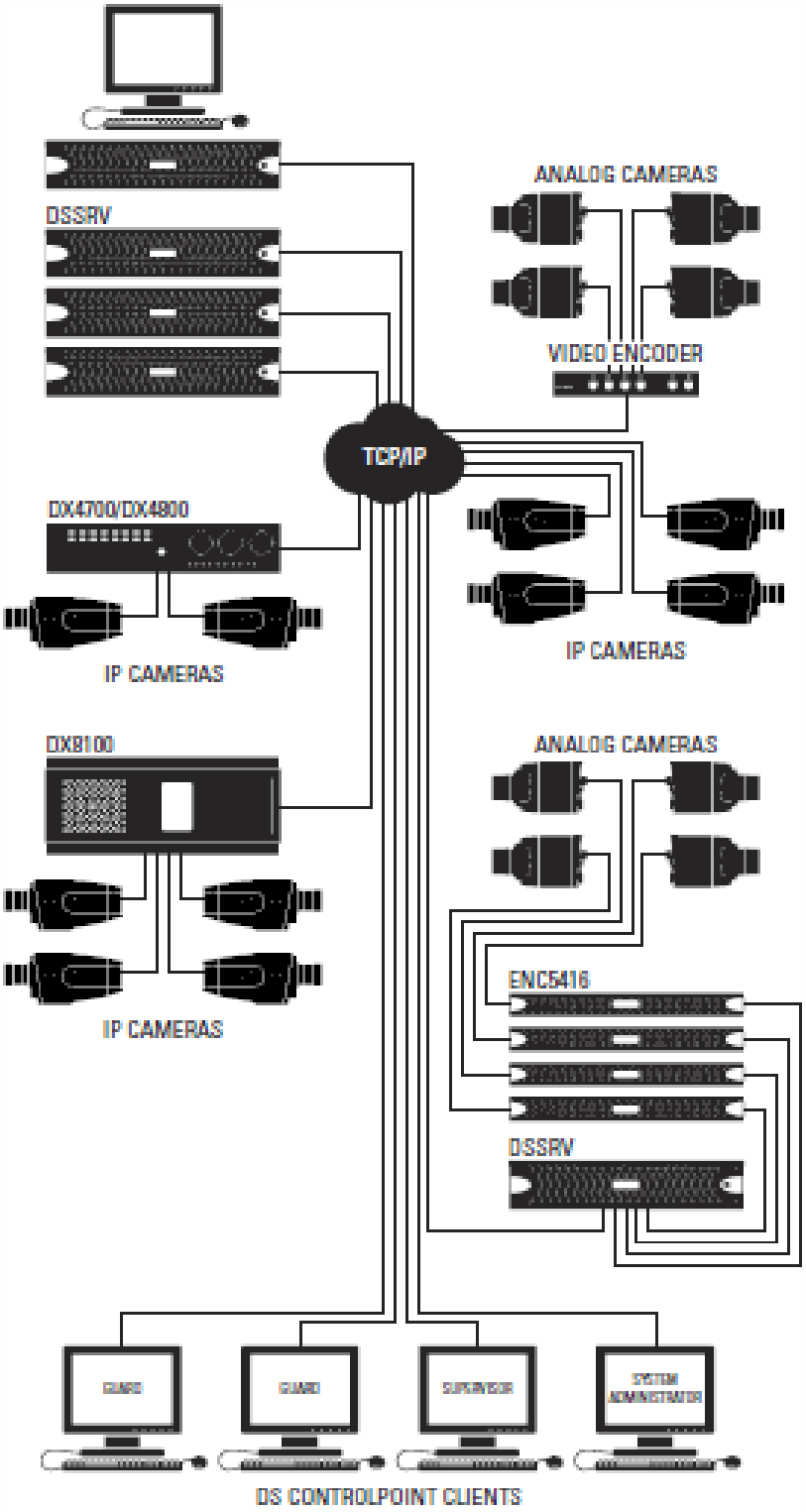
The items described in the schedules to be priced are to meet the under listed minimum specifications and of the stated model or equal and approved:

BMS CONNECTION

The CCTV system should be BMS compatible
The BMS protocol to be used is to be “BACNET IP protocol”

EQUIPMENT

CCTV ARCHITECTURE



CCTV CAMERAS & SYSTEMS

The CCTV Cameras & Systems to be quoted for in this document should have the following as a minimum and should be included in the costs. They should be:

- POE (Power over Ethernet) Capable, 12VDC or 24VAC power options unless otherwise stated
- Complete with appropriate bases
- Complete with appropriate brackets for wall mounting where applicable
- Complete with appropriate brackets for pendant mounting where applicable
- Complete with appropriate junction boxes, adapters, etc. where applicable.
- Having a password protection option.
- Contain a built-in web server making video and configuration available to multiple clients in a standard browser environment using HTTP, without the need for additional software.
- Operating software should NOT have annual renewable licenses.
- Shall not require any additional software to operate, and shall support full functionality when operating in the applied environment i.e. MS Internet Explorer 8.x or higher on Windows 7 or higher.
- Supporting both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
- Able to allow event functions to be configurable via the web interface.
- Able to provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.
- Able to accept external time synchronization from an NTP (Network Time Protocol) server.
- Able to provide the ability to apply a privacy mask to the image.
- Able to allow for the overlay of a graphical image, such as a logotype, into the image.
- Able to allow all customer-specific settings to be stored in a non- volatile memory and shall not be lost during power cuts or soft reset.
- Able to provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.
- Able to be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.
- Be replaceable and available in a number of different colours to match interior design.

The CCTV Cameras should support the following protocols as a minimum:

- TCP/IP, UDP/IP (unicast, multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP v2c/ v3, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, and 802.1x (EAP)

The CCTV Cameras should be supported by the following Certifications, Ratings & Patents as a minimum:

- CE, class A
- FCC, class A
- UL/cUL listed
- C-Tick
- US Patents 5,931,432; 6,793,415 B2; 6,802,656 B2; 6,821,222 B2
- Meets NEMA Type 4X and IP66 Standards when installed properly (B52-F-E and B52-PG-E)
- ONVIF Profile S
- Environmental models: IEC 60068-2-1 / 2 / 6 / 14 / 27 / 30 and 78

CCTV CABLING

The CCTV cabling should follow the following guidelines:

xii.) Cabling should be done in CAT 6A Cables shielded UTP cables

xiii.) Cabling should be housed in conduits

xiv.) Cabling Should be done with ease of installation through identical wiring methods

xv.) Maximum cabling distance shall not be more than 100m from a switch

==========

Kindly, **tick (√)** where it meets and **cross (X)** where it does not meet specifications on the appropriate tables below.

CCTV MODEL 01: Internal Indoor IP Dome Camera (80 Degree View)

The camera should meet the following specifications.

Internal Indoor IP Dome Camera (80^0 View)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Indoor IP	
View Angle	80 Degree Minimum	
Day/Night	Day/Night Capability	
Frames per second	Up to 30 Images per Second (IPS) at 1080p	
Tampering	Should Have Tampering detection (Blurring, Blinding & Scene Change)	
Construction	Die Cast Aluminum, Polycarbonate Bubble	
Durability	IP66 Ingress Protection, IK10 (20J) impact resistance	
Finish	Preferable Light Gray (RAL 7035) with Satin Texture	
Mounting	Adjustable stand / clamp for easy mounting	
CAMERA		
Max Resolution	5 Megapixel (MPx) 2592 x 1944 (5.0 MPx) Resolution	
Image sensor	1/3.2-inch CMOS	
Electronic Shutter	Range of 1/5 to 1/10,000 sec	
Dynamic Range	65dB WDR (Wide Dynamic Range) at full resolution	
Noise Reduction	Yes (ON / OFF Selectable) Digital	
Illumination	0.30 lux @ f/1.2 for Color	
IR Illumination	Integrated Adaptive IR Illumination upto 15m, auto ON in Night mode or OFF	
Lens	3-9 mm, Varifocal	
Focus	Autofocus	
VIDEO		
Video Streams	Up to 2 Simultaneous Video Streams	
Video Analytics	Motion Detection and Camera Sabotage Analytics	
Aspect ratio	4:3 @ 5MPx	

Internal Indoor IP Dome Camera (80^0 View)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Video Encoding	H.264 and MJPEG Compression Capability	
ELECTRICAL		
Network Port	RJ-45 connector for 100Base-TX	
Power Input	Power over Ethernet PoE (IEEE 802.3af) or 24 VAC Power Input	
Power Consumption	15W Maximum	
Local Storage	Accessible Edge Storage with Micro SD Card (32GB)	
ENVIROMENTAL		
Temperature	Operating Temp of -40°C to +50°C (-40°F to 122°F)	
INTEGRATION		
Compatibility	Compatible with Third-Party Video Systems	
Connectivity	ONVIF Profile S Standard Conformant or equivalent	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==

CCTV MODEL 02: Panoramic IP Dome Camera (180 Degree View) - Indoor / Outdoor

The camera should meet the following specifications.

Panoramic IP Dome Camera (180^0 View) - Indoor / Outdoor		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Indoor or Outdoor IP	
View Angle	180 Degree Minimum Panoramic View	
Day/Night	Day/Night Functionality with Mechanical IR cut filter	
Binning Mode	Binning Mode for Strong Low Light Performance	
Frames per second	5.2fps	
Tampering	Should Have Tampering detection (Blurring, Blinding & Scene Change)	
Construction	Die Cast Aluminum, Polycarbonate dome Bubble	
Durability	IP66 Ingress Protection, IK10 (20J) impact resistance dome	
Finish	Preferable Light Gray (RAL 7035) with Satin Texture	
Mounting	Adjustable stand / clamp for easy mounting	
Gimbal	Easily Adjustable, 2-Axis w/360^0 pan and 90^0 tilt. Up to 4 Individual Camera Gimbals can be independently placed in any orientation around a 3600 track with extra positions for looking straight down.	
CAMERA		
Max Resolution	12 Megapixel (MPx) 8192 x 1536 Resolution	
Image sensor	4 x 3MP CMOS	
Resolution @Full FOV	Total: 8192 H x 1536 V & Per Sensor: 2048 H x 1536 V	
Resolution @ 1/4	Total: 4096 H x 768 V & Per Sensor: 1024 H x 768 V	
Electronic Shutter		
Dynamic Range	100dB WDR (Wide Dynamic Range) at full resolution	
Noise Reduction	Noise cancellation	

Panoramic IP Dome Camera (180^0 View) - Indoor / Outdoor		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Illumination	0.25 lux for Color in Binning mode & 0.3 Lux for Color mode	
IR Illumination	Electro-Mechanical IR Cut Filter	
Lens	IR 8 mm, F/1.6', H-FOV = 33^0	
VIDEO		
Video Streams	8 non-identical streams (2 per sensor)	
Video Frame Rates	Max 5.2fps (8192 x 1536) 16.7fps (4096 x 768)	
Video Encoding	H.264 (MPEG-4, Part 10)/Motion JPEG	
ELECTRICAL		
Network Port	RJ-45 connector for 100Base-TX	
Network Interface	100 Base-T Ethernet	
Power Input	Power over Ethernet PoE (IEEE 802.3af) or 24 VAC Power Input	
Power Consumption	15W Maximum	
ENVIROMENTAL		
Temperature	Operating Temp of -40°C to +50°C (-40°F to 122°F)	
INTEGRATION		
Compatibility	Compatible with Third-Party Video Systems	
Connectivity	ONVIF Profile S Standard Conformant or equivalent	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==

CCTV MODEL 03: *Panoramic IP Dome Camera (360 Degree View) - Indoor / Outdoor*

The camera should meet the following specifications.

Panoramic IP Dome Camera (360^0 View) - Indoor / Outdoor		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Indoor or Outdoor IP	
View Angle	360 Degree Minimum Panoramic View	
Day/Night	Day/Night Functionality with Mechanical IR cut filter	
Binning Mode	Binning Mode for Strong Low Light Performance	
Frames per second	5.2fps (8192 x 1536)	
Tampering	Should Have Tampering detection (Blurring, Blinding & Scene Change)	
Construction	Die Cast Aluminum, Polycarbonate dome Bubble	
Durability	IP66 Ingress Protection, IK10 (20J) impact resistance dome	
Finish	Preferable Light Gray (RAL 7035) with Satin Texture	
Mounting	Adjustable stand / clamp for easy mounting	
Gimbal	Easily Adjustable, 2-Axis w/360^0 pan and 90^0 tilt.	
CAMERA		
Max Resolution	12 Megapixel (MPx) 8192 x 1536 Resolution	
Image sensor	4 x 3MP CMOS all customizable	
Resolution @Full FOV	Total: 8192 H x 1536 V & Per Sensor: 2048 H x 1536 V	
Resolution @ 1/4	Total: 4096 H x 768 V & Per Sensor: 1024 H x 768 V	
Electronic Shutter	Programmable shutter speed	
Dynamic Range	100dB WDR (Wide Dynamic Range) at full resolution	
Noise Reduction	Noise cancellation	
Illumination	0.15 lux for Color in Binning mode & 0.5 Lux for Color mode	
IR Illumination	IR corrected lens	
Lens	IR 8 mm, F/1.6', H-FOV = 33^0	
VIDEO		

Panoramic IP Dome Camera (360^0 View) - Indoor / Outdoor		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Video Streams	8 Non-identical Streams (2 Per Sensor)	
Video Frame Rates	Max 5.2fps (8192 x 1536) 16.7fps (4096 x 768)	
Video Encoding	H.264 and MJPEG Compression Capability	
ELECTRICAL		
Network Port	RJ-45 connector for 100Base-TX	
Network Interface	100 Base-T Ethernet	
Power Input	Power over Ethernet PoE (IEEE 802.3af) or 24 VAC Power Input	
Power Consumption	15W Maximum	
ENVIROMENTAL		
Temperature	Operating Temp of -40˚C to +50˚C (-40˚F to 122˚F)	
INTEGRATION		
Compatibility	Compatible with Third-Party Video Systems	
Connectivity	ONVIF Profile S Standard Conformant or equivalent	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==

***CCTV MODEL 04*: External Outdoor IP Camera (80 Degree View)**

The camera should meet the following specifications.

External Outdoor IP Camera (80^0 View)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (✓ or X)
GENERAL		
Application	Outdoor	
View Angle	80 Degree Minimum	
Day/Night	Day/Night Capability	
Frames per second	Up to 30 Images per Second (IPS) at 1080p	
Tampering	Should Have Tampering detection (Blurring, Blinding & Scene Change)	
Construction	Die Cast Aluminum	
Durability	IP66 Ingress Protection, IK10 (20J) impact resistance	
Finish	Preferable Light Gray (RAL 7035) with Satin Texture	
Mounting	Adjustable stand / clamp for easy mounting	
CAMERA		
Max Resolution	5 Megapixel (MPx) 2592 x 1944 (5.0 MPx) Resolution	
Image sensor	1/3.2-inch CMOS	
Electronic Shutter	Range of 1/5 to 1/10,000 sec	
Dynamic Range	65dB WDR (Wide Dynamic Range) at full resolution	
Noise Reduction	Yes (ON / OFF Selectable) Digital	
Illumination	0.30 lux @ f/1.2 for Color	
IR Illumination	Integrated Adaptive IR Illumination upto 25m, auto ON in Night mode or OFF	
Lens	3-9 mm, Varifocal	
Focus	Autofocus Motorized Remote Zoom Lens	
VIDEO		
Video Streams	Up to 2 Simultaneous Video Streams	
Video Analytics	Motion Detection and Camera Sabotage Analytics	
Aspect ratio	4:3 @ 5MPx	
Video Encoding	H.264 and MJPEG Compression Capability	
ELECTRICAL		
Network Port	RJ-45 connector for 100Base-TX	

External Outdoor IP Camera (80^0 View)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Power Input	Power over Ethernet PoE (IEEE 802.3af) or 24 VAC Power Input	
Power Consumption	15W Maximum	
Local Storage	Accessible Edge Storage with Micro SD Card (32GB)	
ENVIROMENTAL		
Temperature	Operating Temp of -40°C to +50°C (-40°F to 122°F)	
INTEGRATION		
Compatibility	Compatible with Third-Party Video Systems	
Connectivity	ONVIF Profile S Standard Conformant or equivalent	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==

CCTV MODEL 05: Outdoor PTZ (Pan, Tilt & Zoom) Camera (360 Degree View)

The camera should meet the following specifications.

Outdoor PTZ (Pan, Tilt & Zoom) Camera (360 Degree View)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Outdoor	
View Angle	360^0 Pan rotation @ 280^0 per second with Tilt & Zoom Capability	
Day/Night	Day/Night Capability	
Frames per second	Up to 30 Images per Second (IPS) at 1080p	
Tampering	Should Have Tampering detection (Blurring, Blinding & Scene Change)	
Construction	Die Cast Aluminum	
Durability	IP66 Ingress Protection, IK10 (20J) impact resistance	
Finish	Preferable Light Gray (RAL 7035) with Satin Texture	
Mounting	Adjustable stand / clamp for easy mounting	
CAMERA		
Max Resolution	3 Megapixel (MPx) 1920 x 1080 Resolution	
Image sensor	1/2.8-inch Type Exmor CMOS	
Optical Zoom	20X	
Digital Zoom	12X	
Dynamic Range	80dB WDR (Wide Dynamic Range) at full resolution	
Noise Reduction	Yes , Active Noise filtering	
Illumination	Sensitivity in lux for 90% reflectance, f/1.6 (wide-angle), 28 dB gain at 30 IRE (30% of signal level) with sensitivity boost OFF; 4X improvement to sensitivity with sensitivity boost ON 0.65 lux for Color (33ms) & 0.07 Lux for Color (250ms)	
IR Illumination	IR Cut Filter	
IR Cut Filter	Yes, Should be inclusive	
IR Trace	Yes, Should be inclusive	

Outdoor PTZ (Pan, Tilt & Zoom) Camera (360 Degree View)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
Lens	f/1.6 ~ f/3.5 focal length 4.7mm (wide) ~ 94.0mm (tele)	
Iris Control	Auto Iris with Manual Overide	
Horizontal View Angle	55.4^0 (wide) ~ 2.9^0 (tele)	
Aspect ratio	16:9	
VIDEO		
Video Streams	Up to 2 Simultaneous Video Streams	
Video Analytics	Motion Detection and Camera Sabotage Analytics	
Aspect ratio	16:9	
Video Encoding	H.264 and MJPEG Compression Capability	
ELECTRICAL		
Network Port	RJ-45 connector for 100Base-TX	
Power Input	Power over Ethernet PoE (IEEE 802.3af) or 24 VAC Nominal Power Input, 24 VDC Nominal Power Input	
Power Consumption	15W Maximum	
Local Storage	Accessible Edge Storage with Micro SD Card (32GB)	
MECHANICAL		
Variable Speed	0.1^0 to 280^0	
Preset Accuracy	± 0.1^0	
Pan Movement	360^0 Continuous Pan rotation	
Vertical Tilt	$+1^0$ to -90^0	
Manual Pan Speed	0.1^0 to 80^0 / sec Manual Operation	
Manual Tilt Speed	0.1^0 to 40^0 / sec Manual Operation	
Preset Pan Speed	280^0 / sec	
Preset Tilt Speed	160^0 / sec	
ENVIROMENTAL		
Temperature	Operating Temp of -40˚C to +50˚C (-40˚F to 122˚F)	
INTEGRATION		
Compatibility	Compatible with Third-Party Video Systems	
Connectivity	ONVIF Profile S Standard Conformant or equivalent	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==

NETWORK VIDEO RECORDER (NVR)

The Equipment should be adaptable to function both as a Network Video Recorder (NVR) or a Digital Video Recorder (DVR)

The NVR should operate on a fully open architecture thus making it compatible with other manufacturer's devices.

The NVR should:

- Be Rack-mountable
- Have enough storage capacity of information for permanent recording of all cameras for minimum of 30 days in regards with the number of cameras
- Be a fully scalable multimedia management system. This network-based system architecture should enable simultaneous monitoring of video and audio, live and recorded, from multiple stations.
- Be complete with all accessories i.e. power cords, USB Keyboard & Mouse, Bexel Key, Rack mount kits, documentation, resource and recovery discs, etc

The NVR should be supported by the following Certifications, Ratings & Patents as a minimum:

- CE, class A; Meets EN50130-4 standard requirements
- FCC, class A
- UL/cUL listed
- C-Tick

The NVR should meet the following specifications.

NETWORK VIDEO RECORDER (NVR)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Support	280 Mpbs (recording, viewing & Export) to support IP and analog video	
Camera Streams	Supports up to 128 IP Camera Streams; up to 64 Analog Cameras per server	
Software	Optimized to Support Pre-Installed DS NVs Software & Integrated into the NVR Hardware	
Recording	Records H.264, MJPEG, and MPEG-4 IP Streams	
Compatibility	~ Compatible with Third-Party IP Cameras & Network Encoders ~ Compatible with DS Control Point for Simultaneous Monitoring of All DS Series and DX Series Products in a Single Client Interface ~ Compatible with the DS Archive Utility	
Expandability	Expandable by Networking an Unlimited Number of Servers and Encoders (Dependent on Available Network Bandwidth)	
Recording	Recording Rate Configurable per Individual Camera	
Viewing, Control, Management	Unlimited Operators	
Hard Disk Drives	~ Front Accessible Hard drives ~ Up to 6No. hot-swappable HDDS	
Internal Storage	Up to 24TB internal per server	
External Storage	Up to 24TB internal per server	
Storage Options	Capability for local or network-attached storage for backup and export	
Deployment	Stand-alone or network recorder	
SYSTEM		
Processor	2nd Generation Intel® Core™ i7	
Operating System	Windows 7 Ultimate 64-bit SP1	
Internal Memory	8 GB RAM	
Internal Storage (JBOD or RAID 5)	DS-SRV = [500 GB, 3 TB, 6 TB, 9 TB, 12 TB, 15 TB, or 18 TB] DS-SRV-DVD = [500 GB, 3 TB, 6 TB, 9 TB, or 12 TB] (This Will be as Specified in the Bills of Quantities)	
RAID Level	RAID 5	
External Storage	Up to 24 TB JBOD or RAID 5 through DX8100HDDI (requires optional DS-SRV-SCSI card)	
NETWORK		
Interface	2 Gigabit Ethernet RJ-45 (1000Base-T)	
Auxiliary Interfaces	USB Ports 1 front (USB 2.0) 4 rear (2 USB 3.0; 2 USB 2.0)	

NETWORK VIDEO RECORDER (NVR)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
POWER		
Power Input	100 to 240 VAC, 50/60 Hz, auto ranging	
Power Supply	Internal	
Power Consumption	213W Maximum	
CONNECTIONS		
Video Out	2 DVI-D connectors	
Audio Out	1, 1/8-inch audio jack connector	
FRONT INDICATORS		
Buttons	Power	
Indicators	Unit Status Green, amber, red Primary Network Green, amber, red Secondary Network Green, amber, red Software Status Green, amber, red (based on diagnostics) Hard Disk Status Green, red, off (behind bezel)	
ENVIROMENTAL		
Temperature	Operating Temp of 10˚C to 35˚C (50˚F to 95˚F)	
Operating Humidity	20% to 80%, noncondensing	
Connectivity	ONVIF Profile S Standard Conformant or equivalent	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========

MONITOR

The Monitor should be of High definition.

The Monitor should meet the following specifications.

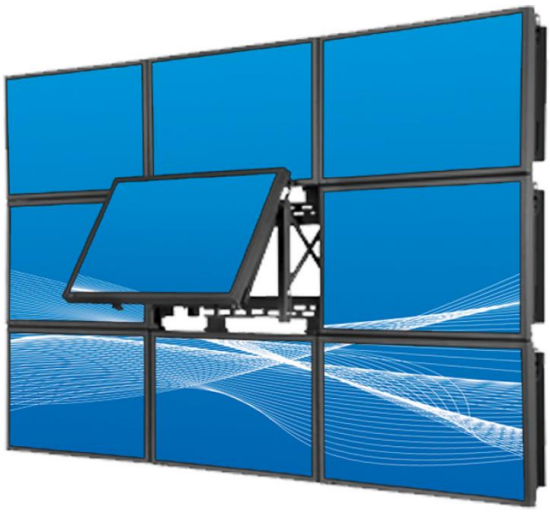
MONITOR		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Size	32" LED Commercial Screens.	
Native Resolution	Minimum 1920 x 1080p full HD native resolution.	
LED Backlight Technology	Must use energy saving LED backlighting rather than cold cathode fluorescent lights (CCFL)	
PIP	Must provide picture-in-picture (PIP) for any combination of 2 inputs.	
Energy Star certified	Must be energy Star certified, ensuring reliability in a 24/7 security installation environment	
Design	Must be constructed of a lightweight aluminum frame composition for desktop or wall-mount installations.	
Compliance	ENERGY STAR® Level 5.1 Compliant	
Response Time	6.5ms Response Time (typical)	
Viewing Angle (H/V)	178˚/178˚	
Refresh Rate	60 Hz	
Panel Life	50,000 plus hours (typical)	
Display Colors	1.07 billion	
Panel Aspect Ratio	16:9	

MONITOR		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==========

VIDEO WALL & ACCESSORIES

The Video wall and the Network Based Graphic controller should be integrated to form a compatible system that achieves a display that is comfortable to the human eye.



The Video Wall will have key features such as:

- Almost unlimited number of cascadable displays
- Expandable for future system upgrades
- Frameless design, minimal gaps
- Optimized for video walls (profile frame, ventilation system, etc.)
- Robust metal design
- Best image quality
- Optional with sensor-based Color adjustment system for LCD video walls (EYE-LCD-CAS)

The Video Wall should meet the following specifications.

VIDEO WALL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
VIDEO WALL SYSTEM C/W MOUNTS		
Modular-Version	With stacking frame for LCD based display walls.	
Mount	Stackable frames enable quick and simple assembly of display walls	
Gamma Correct	Dynamic adjustment over the complete gamma curve	
Internal Split Controller	Images scalable over several modules, possible up to a matrix of 10x10 displays	
Loop-	Signal loop from display to display.	

VIDEO WALL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
through for RGB and DVI Signals:	Customer advantage: No additional signal distributors necessary	
PIP	Picture-in-Picture (Video on data representation) on one display; possible with all displays of a display wall.	
PSS	Panel-Security-System. Security features for long-term operation to reduce the so-called image sticking effect.	
PSC	Panel-Self-Control. Provides various functions, such as automatic panel dimming, automatic temperature and ventilation adjustments and emergency cut-out.	
Control	Internal control board enables the addressing and control of all functions.	
PDS	Panel-Database-Solution. Open interface, easy connection to other systems avoids maloperations. User-friendly GUI.	
PSM	Panel-Status-Monitoring. Comprehensive and detailed survey of the complete system (status messages).	
Service-friendly	Modular design, pluggable component connections results in short MTTR (optional: Front maintenance version).	
Optimal Ventilation Concept:	Ventilation ducts for air-supply and exhaust.	
Technology	S-PVA TFT	
Display Resolution	1,366 x 768 Pixel (WXGA)	
Pixel Pitch	0.7455 mm (H/V)	
Backlight MTBF	50,000 hrs.	
Ambient Light Sensor	Automatic adjustment to the ambient light conditions (e.g. day and night adjustment)	
DISPLAY CHARACTERISTICS		
Colours	8 Bit / 16.7 million	
Aspect Ratio	16:9	
Viewing Angle	H 178° / V 178°	
Response Time	8 ms	
Contrast Ratio	3000 : 1	
Brightness	typ. 500 cd/m2 (max. 700 cd/m2)	
CONNECTORS		

VIDEO WALL		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Inputs	Power Supply 100-250V 50/60Hz 2 x DVI IN (DVI) 2 x RGB IN (HD15 + DVI) 2 x Composite Video (BNC) 1 x S-Video (Mini-DIN 4pol) 1 x IR (Mini Jack 2.5 mm) 1 x RS232	
Outputs	1 x DVI-D 1 x RS232	
DIMENSIONS		
Display	with Stacking Frame 1026.6 x 580.8 x 232 mm (WxHxD)	
Bezel Width	2.7 mm bottom/right, 4.6 mm top/left (Active-to-Active: 7.3 mm)	
ENVIROMENTAL		
Power Consumption	300 Watt	
DPMS	< 1 Watt	
Thermal Load	230 Watt	
Temperature	typ. 0 - 40 °C	
Humidity	typ. 25 - 60 % (max. 90% RH)	
CERTIFICATES		
EMI	CE	
ISO	ISO 13406/2 (pixel error class 2)	
SUPPORT & LOCAL DEALERSHIP		
Authorized distributor	Attach Manufacturer's Authorization Form	
Warranty	3 Year Manufacturer's warranty	
Support	2 Years comprehensive preventive and maintenance contract	
Reference	At least 3 similar reference sites within country with contact number of the customer	
Electrical Engineering Services	Category of Registration with National Construction Authority (NCA 1 -5)	
Local Support	Equipped local lab and qualified/certified personnel to provide after sale support	
Spares	Stored locally for fast replacement and minimum down time of the system.	
Standard /Rating	ISO 9001	

==========

==========

NETWORK BASED GRAPHIC CONTROLLER (FOR VIDEO WALL):

The Network Based Graphic Controller will have key features such as:

- Redundant power supply units, hot swappable
- Redundant SATA Solid State Disk with RAID1, hot swappable
- Windows Disk Imaging and Disaster Recovery, in the event of a system or disk crash, security attack or other fatal failure you can restore your entire controller within minutes - no reinstallation is required.

For the Bus system:

- The core of the system MUST be ultra-fast PCIe Switch Fabric with PCIe X4 slots and a total bandwidth of 192GB/s for transmitting Windows® information, network data, video, digital streams and graphic signals to each output card. This guarantees a very high bandwidth without decreasing frame rates when numerous inputs are displayed simultaneously

For the IP Decoder Board:

- Up to 512 video signals in one system
- Simultaneous decoding of up to 32 channels in D1 resolution per IP-decoder board
- Simultaneous decoding of up to 16 channels in full HD resolution per IP-decoder board
- Supports MPEG2, MPEG4, H264

For the RGB / DVI Inputs:

- Display of the source output in freely moveable, scalable and placeable windows on the display wall
- Up to 40 RGB/DVI input sources

For the SDI Inputs:

- Display of the source output in freely moveable, scalable and placeable windows on the display wall
- Up to 20 SDI inputs
- Video Modes: SD-SDI (480i/576i), HD-SDI (up to 1080i), 3G-SDI (up to 1080p) & 2k digital cinema modes

The Network Based Graphic Controller should meet the following specifications.

NETWORK BASED GRAPHIC CONTROLLER (FOR VIDEO WALL)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
NETWORK BASED GRAPHIC CONTROLLER		
Operating System	Win2003+2008 Server 32/64Bit, Windows 7 32/64Bit or Higher	
Processor	Up to two Intel® 64-bit XEON® Processors Quad Core Intel® Xeon® Processor E5606 with 2,13 GHz (optionally up to 12 core with 3,3 GHz)	
RAM	8GB DDR3 ECC RAM (expandable up to 64GB)	
Expansion Slots	7 x PCI express X8	
Hard Disk	SATA 3.0Gbps, Hot Swap 180GB, SSD (optional: 180 GB, RAID1 Hot Swap, optionally expandable up to 1 TB) **(EXACT SPEC TO BE AS IN BILLS OF QUANTITIES)**	
DVD-RW drive:	Reading speed: DVD: 16x / CD: 48x max write speed: DVD-R: 24x / DVD+R: 24x / DVD-RW: 6x / DVD+RW: 8x / DVD-R DL: 12x / DVD+R9: 12x / CD-R: 48x / CD-RW: 32x	
Ethernet	2 x 10/100/1000 Mbps RJ45 Ports standard integrated	
Power Supply	100-240 V, 50-60Hz, 800 Watt, optional: redundant, Hot Swap	
Accessories	104-key keyboard, 2-key-wheel/button-Mouse, with extension cable up to 50m, DVI cable for Cubes (fiberglass) for distances up to 100m	
Expansion Slots	8x PCI express X4 1x PCI express X8 (up to 33 with further extension boxes)	
BUS	Switch Fabric with max. Bandwidth to 192GB/s	
Graphic Memory	512MB per card	

NETWORK BASED GRAPHIC CONTROLLER (FOR VIDEO WALL)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Wall Configuration	Any rectangular or non-rectangular array up to 36 display modules	
Resolution	640x480 up to 1920x1200 and HDTV 1080p per Output	
Color Depth	16/32 Bit	
Output Signal	DVI-I Connector (analog and digital) optional: VGA to DVI-I adapter	
VIDEO INPUT CARD		
Inputs	8 x Composite oder S-Video BNC Connectors	
Input format	NTSC, PAL, SECAM	
Decoder	High-Quality Video Decoder mit De-interlacing	
Scaling & Display:	Display of multiple video sources in any size, everywhere on the wall. Control of colour, brightness, contrast	
DVI INPUT CARD		
Inputs	2 x DVI-I / HD15	
Signal Processing	RGB/DVI with full Refresh; integrated Scaler	
Format	RGB with separate Syncs for H and V, DVI-I	
Resolution	Up to 1920x1200 Pixels	
Pixel Format	16Bit/32Bit, YUV422, RGB 8:8:8	
Scaling & Display	Display of multiple sources of any size, everywhere on the video wall	
IP DECORDER		
Decoder	32x D1 Decoder 16x HD 1080p Decoder	
LAN	Standard integrity 10/100/1000 Mbps RJ45 Ports	
Format	H264, MPEG2, MPEG4	
Resolution	QCIF up to Megapixels	
Frame rates	25/30 Frames per channel	
SUPPORT & LOCAL DEALERSHIP		
Authorized distributor	Attach Manufacturer's Authorization Form	
Warranty	3 Year Manufacturer's warranty	
Support	2 Years comprehensive preventive and maintenance contract	
Reference	At least 3 similar reference sites within country with contact number of the customer	
Electrical Engineering Services	Category of Registration with National Construction Authority (NCA 1 -5)	
Local Support	Equipped local lab and qualified/certified personnel to provide after sale support	
Spares	Stored locally for fast replacement	

NETWORK BASED GRAPHIC CONTROLLER (FOR VIDEO WALL)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
	and minimum down time of the system.	
Standard /Rating	ISO 9001	

==========
==========

JOYSTICK CONTROLLER MODULE

The Joystick Controller Module should meet the following specifications.

JOYSTICK CONTROLLER MODULE		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
GENERAL		
LCD	5" TFT touch LCD	
Control	Control PTZ dome cameras, DVRs and matrix switchers	
Control Operation	Centralized control of up to 255 units with a single controller	
Connections	Connect up to 16 controllers in a system	
Outlook Design	Ergonomic design and easy-to-use keypad	
Joystick	3D joystick to control PTZ function	
Joystick / Jogshuttle Flexibility	Detachable joystick/jogshuttle for universal use (right/left hand use)	
Protocol	Support for multi-protocol	
Interface Use	User friendly Graphical User Interface (GUI)	
COMMUNICATION		
Interface	RS-485/422 (Operating distance 1km), TTL (Matrix)	
Data Port	• 8-pin RJ-45 connector (Female) (RS-485 serial port) • BNC (Video input, Loop through), USB 2.0 (F/W updatable)	
Baud Rate	2,400 ~ 38,400bps	
Protocol	• PTZ - Samsung-T/E, Pelco-D/P, Panasonic, Vicon, AD, Honeywell, ELMO, Bosch, GE • DVR - SRD, SVR • Matrix - SMX-25632 • Receiver - Samsung-T	
OPERATIONAL		
LCD Display	5" TFT touch LCD	
Joystick	3 Axis twist zoom	

JOYSTICK CONTROLLER MODULE		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Jog Shuttle	DVR playback control	
On Screen Display	English	
ELECTRICAL		
Input Voltage	12V DC	
Input Current	4A	
Power Consumption	Max 4W	
MECHANICAL		
Dimensions	459mm x 59mm x 178mm (18.07" x 2.32" x 7") Max	
Weight	1.5Kg (3.3 lb.) Max	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========

==========

WORKSTATION

The Workstation should be compatible with current IP systems.

The Workstation should meet the following specifications.

WORKSTATION		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
HARDWARE		
Processor	Intel® Core™2 Quad or Intel® Core™ i5, 3.0GHz	
Operating System	Microsoft® Windows® 7 Professional (32 bit and 64-bit) with DirectX 11, Microsoft® Windows® XP Service Pack 3 with DirectX 9.0 or Microsoft® Windows® Vista SP2	
HDD Capacity	2TB	
System Memory	16GB minimum but expandable	
Graphics Card (On client PC)	Dedicated PCI/E graphics controller card with 1024 MB or greater dedicated video memory	
Optical drive	DVD	
DVI	Two DVI-I monitor outputs, USB keyboard, and mouse.	
Viewing, Control, Management	Shall allow any combination of live or playback video on the same monitor at the same time.	
Web Browser	Internet Explorer® 8.0 (or later) or Mozilla® Firefox® 3.5 (or later)	
Media Player	Pelco Media Player or Quick Time® 7.6.5 for Windows XP, Windows Vista and Windows 7.	
Accessories	15Inch Monitor, USB Keyboard, Mouse, Desk Speakers	
SOFTWARE INTERFACE		
Central Monitoring	Through a single client user	

WORKSTATION		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
	interface, a user must be able to monitor and manage all hardware devices in a system	
Integration	Hybrid Solution that must seamlessly Integrate analog Cameras, encoders, and the latest IP technology	
Third – Party Support	Must support third-party applications, video analytics, and data transaction information	
Monitors	Must support multiple monitors	
Operation	Shall have Quick Sort by Device Name, IP Address, or Custom Definition	
Video Authentication	Shall be capable of video authentication	
Video Analytics	Shall support video analytics (Active Alert)	
Alerts Monitoring	Data from third-party devices, alarms, events, and audio shall be displayed in any window Pane	
Keyboard Interface	USB 2.0	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========
==========

SOFTWARE

NOTE: Operating software should NOT have annual renewable licenses.

The IP Video management System Software should meet the following specifications.

IP VIDEO MANAGEMENT SOFTWARE		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Integrated VMS	The IP video management system shall consist of and VMS embedded in a purpose built NVR server. The VMS shall consist of base software with individual, non-expiring licenses in the required quantity.	
Updates	The IP video management system software updates shall be downloadable from a publicly available website.	
Support	The IP video management system shall support up to 128 combined IP and analog video streams, with up to 64 direct-attached analog cameras. Analog streams shall be supported using third-party encoders.	
Recording Throughput	The IP video management system shall provide 280 Mbps throughput for recording of analog and IP video streams, playback and export.	
Recording Streams	The IP video management system shall support recording of JPEG, MPEG-4 and H.264 IP streams.	
Video Streams	The IP video management system shall support H.264 Megapixel video streams up to 10 Megapixel resolution with quantities based on a total system of 280 Mbps throughput for recording of analog and IP video streams, playback and export.	
Processor	The IP video management system shall operate on a 2nd Generation Intel® Core™ i7 processor and 8 GB of RAM.	
Operating System	The IP video management system shall utilize a Windows® 7 Ultimate	

IP VIDEO MANAGEMENT SOFTWARE		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
	64-bit operating system.	
Optical Drive	The IP video management system shall support and have an option for an internal DVD+/-RW	
DVI-D ports	The IP video management system shall contain two DVI-D ports.	
Camera Upgrade	The IP video management system shall allow expansion of IP video channel capacity through a licensing without any hardware modification	
Third Party Support	The IP video management system shall support multiple models of IP cameras and encoders and including multiple third-party manufacturers.	
Audio recording	The IP video management system shall support audio recording from cameras in addition to third-party manufacturer's audio recording.	
Storage	The IP video management system shall support recording the internal server with additional storage utilizing SCSI attached external storage.	
Recording	The IP video management system shall be capable of continuous scheduled alarm/event and motion recording. Pre- and post- alarm recording shall also be available and shall be fully programmable on a per channel basis.	
Monitoring	The IP video management system shall support network health and monitoring utilizing third-party SNMP monitoring tools.	
Operation	The IP video management system shall indicate system performance and operation status utilizing a variety of HTML reports.	
Diagnostic	The IP video management system shall display system health monitoring data utilizing front panel LED displays and display popups.	

IP VIDEO MANAGEMENT SOFTWARE		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
Video Analytics	The IP video management system shall optionally support on-board video analytics in quantities of two or four channels with Active Alert software and also provide video analytics monitoring including tracking and counting objects and people.	
Open Architecture	The IP video management system shall have a fully open architecture with support for both IP-specific camera as well as cameras with ONIVIF compliance.	
Automatic Detection	The IP video management system shall support automatic detection of IP cameras. Third-party IP cameras shall be automatically detected dependent on IP driver versions and manufacturers specifications	
Modular /Scalability	The IP video management system shall support an unlimited number of systems connected over a network. Each system shall contain two 1GB network ports; one for IP camera/encoder data, and one to connect to a network for client computer access.	
Viewing and Management	The IP video management system shall be viewed, managed, and played back through a single user interface simultaneously with other video management systems through client workstation software.	

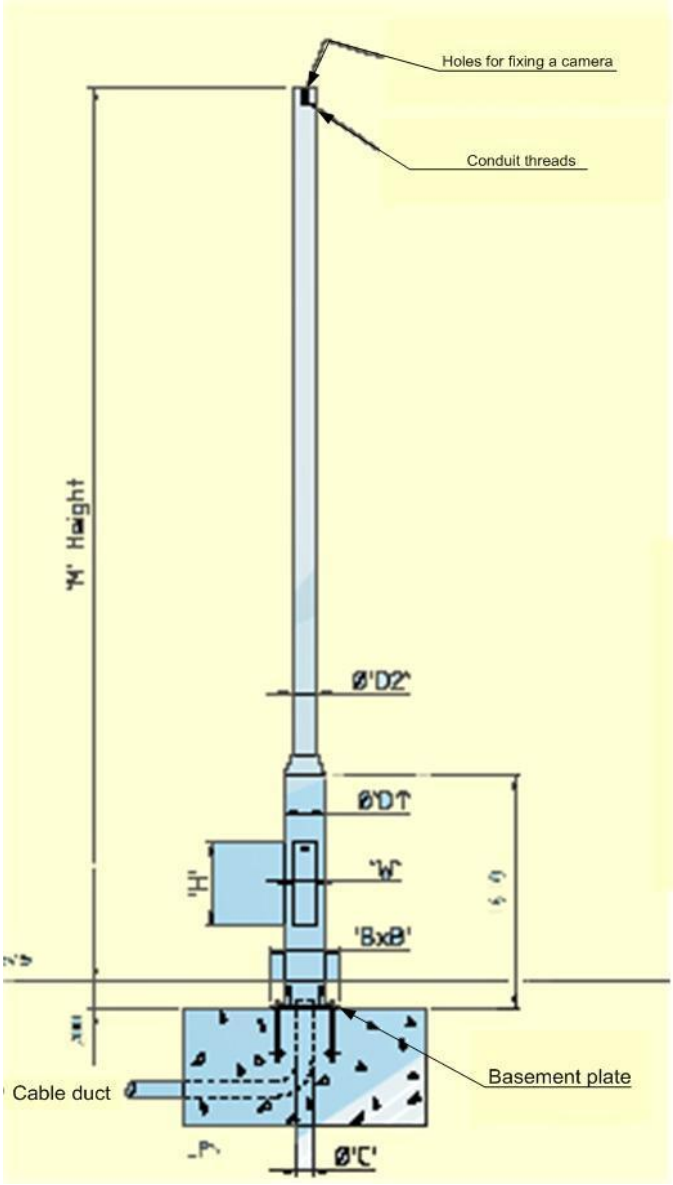
==========
==========

CAMERA POLES

The camera poles for any outdoor cameras shall be supplied & installed by the contractor. The minimum thresholds for installing this poles & cameras are as follows:

- A stable solution for achieving desired camera height, required height may be up to 8 meters.
- Excellent stability characteristics for achieving minimum camera movement.
- Pole should be circular
- Pole shall be tapering at the bottom.
- A desirable column where aesthetics are of importance.
- Totally concealed cable management facility
- Hot dipped galvanized for maximum weather protection both internally and externally.
- Should be painted Black on the external as the final finish
- Custom & bespoke versions tailored to customers' requirements.

The following drawing demonstrates the required columns and their technical specification.


Holes for fixing a camera
Conduit threads
'H' Height
Ø'D2'
Ø'D1'
'H'
'W'
'BxB'
Basement plate
Cable duct
Ø'C'

==========
==========

ACCESS CONTROL (INTEGRATED) PARTICULAR SPECIFICATIONS

SPECIFIC NOTES TO TENDERERS

EXTENT OF INSALLATION

The Contractor shall carry out all the necessary works for successful installation of the services mentioned as described and set out in the technical specifications, Bills of Quantities and accompanying drawings to the satisfaction of the consulting engineers.

This will include the supply & delivery of equipment, fix, install, connect, test, label, commissioning & the associated labour to a clean and neat working system that meets every detail as described in the specification

WARRANTIES

- All equipment supplied under the scope, including all associated installations shall be warranted by the manufacturer against electronic failure for the duration specified in the specifications and if possible, a lifetime warranted against Electronic & Programming failure. ("Lifetime" means that if the electronics & programming should fail at any time it will always be replaced).

- The **bidder to specify the recommended lifespan (if any)** of the system by which date replacement of the entire system is recommended.

==========
==========

SYSTEM SPECIFICATIONS

The items described in the schedules to be priced are to meet the under listed minimum specifications and of the stated model or equal and approved.

STANDARDS

The Access Control system should follow the following standards:

- ISO/IEC 7810 for Cards
- Any other as listed in the Sections that follow

BMS CONNECTION

The Access Control system should be BMS compatible
The BMS protocol to be used is to be "BACNET IP protocol"

ACCESS CONTROL SYSTEM

The Integrated Access Control & Intrusion alarm System shall be installed on the premises to ensure control and protection of the premises to the levels desired.
The Access control system will be installed in various restricted locations as will be specified in the project. This can be passages, sensitive rooms, etc.
The access control system may include any of the following as will be specified in the Bills of Quantities:

1) Proximity Coded Card (credential)
2) Proximity Card Reader with Pin Pad
3) Proximity Card Reader
4) Biometric Finger print Reader
5) Barcode Readers
6) Card Reader Controllers
7) Magnetic Door Contacts (Slim line)
8) Electric strike
9) Electromagnetic Locks (Maglock)
10) Door Closers
11) Access Control Software serving as the central ISMS

The distribution of the controllers of the integrated access and intrusion alarm systems shall be determined by the contractor during the detailed design, taking into consideration the locations of the controlled elements, the capacity of the

controllers (how many doors may be connected to one controller), cabling aspects, power supply etc…

The contractor shall take into consideration that for system survivability reasons, no more than 6 doors should be controlled by one controller.

Each door controlled by the access control system shall be equipped with the following elements:

1) Card readers installed near the frame of the door, at the external and internal sides at height of 120cm.

2) Electric strike lock integrated into the frame of the door.

3) A magnetic contact, serving as opening detector, based on 2 units. One unit is integrated into the frame and the other is integrated into the door itself.

4) Door closer.

5) Local buzzer initiating an alarm signal whenever the door is left open longer than a predefined period or whenever a non-authorized opening are detected by the access control system.

ACCESS CONTROL CABLING

The access control cabling should follow the following guidelines:

i.) Cabling should be done in 5-Conductor #22 AWG Shielded UTP cables

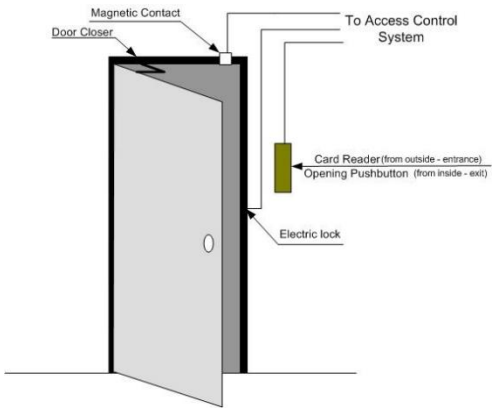
ii.) Cabling should be housed in conduits

iii.) Cabling Should be done with ease of installation through identical wiring methods

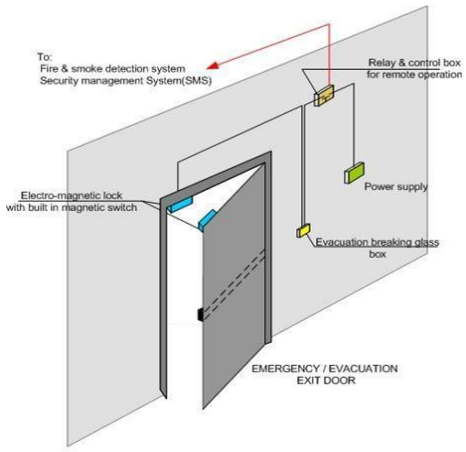
iv.) Maximum cabling distance shall not be more than 150m from a panel

DOOR INSTALLATIONS

A. ELECTRIC STRIKE ARCHITECTURE



B. MAGNETIC CONTACT ARCHITECTURE



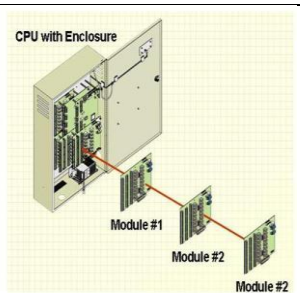
EQUIPMENT

CARD READER CONTROLLER

This should meet the following specifications.

Card Reader Controller		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Compatibility	The card reader controller shall be fully compatible with the system management software and card reader and shall be able to handle the full capacity of card holders.	
Expandability	It shall be expandable and upgradeable.	
Operation	The controller shall be able to operate either as an off-line stand-alone unit or as a component of an on-line system. Should the control computer for any reason not be active or in case of a communications link failure, the controller shall record all transactions for later automatic uploading to the control computer.	
Data	All data relating to valid access control cards and alarm inputs shall be updated at all card reader terminals periodically or after each parameter modification.	
Transactions	Each controller shall be able to process and store at least 20,000 transactions in the off-line mode. Storage of information shall be by means of a non-volatile memory.	
Storage	The system shall support storage of cardholder biometric information (e.g. fingerprint or hand geometry templates) at the panel (as part of the cardholder record).	
Battery	The controller shall be supplied complete with battery back-up for uninterrupted access control for up to ten hours in the case of a main power failure. Mains supply failure shall be communicated to the control computer as an alarm condition. As requested, the battery	

Card Reader Controller		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
	and charging system shall be installed in a separate enclosure.	
Activation Relays	The controller shall be able to activate relays for external circuit such as locks for the doors and door insecure alarms. The decision on whether to activate these relays or not must be in both online and offline modes of operation.	
Alarm Sources	The controller shall have alarm inputs available as well as exact location of alarm sources. It shall be possible to extend the number of digital and analogue inputs and outputs by adding relevant extension board.	
Alarm Status	The controller shall have the capability to activate an alarm circuit and shall report changes in alarm status to the control computer in the online mode of operation.	
Tamper Switches	Tamper switches shall be installed in the cabinets of the controller boxes to raise an alarm both locally and at the control computer if the door is opened and unless approved by the customer, card reader controllers shall be installed in protected cabinets.	
Network	The system shall include a network interface module. The module shall be 10 Mbps Ethernet based and capable of residing on a Local Area Network (LAN) or Wide Area Network (WAN) without connectivity to a PC serial port. The controller with the network interface module shall be able to communicate with the database server through industry standard switches and routers.	
Offline Operation	In the event that the controller loses communication with system software, it shall continue to function normally (stand-alone). While in this offline state, the controller shall make access granted/denied decisions and maintain a log of the events that occur. Events shall be stored in local memory and uploaded to the system software after communications are restored.	
Readers	The controller shall be modular supporting 4, 8, and 12 readers. (Alternative configuration of readers may be offered).	
Capacity	The capacities of the required controller shall be as follows: • At least 12 Reader Configurations • 2,000 Cardholders • 20,000 History Transactions • 16 site codes • 4 Authorization Groups per Cardholder • 64 Time Periods with 7 Segments Per Period • 366 Days (Leap Year) • 1 Year Battery Backed Clock Calendar and Memory	
Enclosure	16 AWG CRS enclosure with Tamperproof Lock, and Key • Medium: 457 mm x 292 mm x 152 mm • Large: 554 mm x 409 mm x 145 mm	

Card Reader Controller		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Cabling Requirements	Typical Cabling Requirements of the required controller should be as following: • Host-to-Controller: Cat 5/6 Maximum Total Distance 100 m • Host-to-Controller: 4 conductors Maximum Total Distance 1,219 m • Controller-to-Controller: 4 Conductors Maximum Total Distance1,219 m • Controller-to-Door: Reader: 6 Conductors Maximum 152 • Door Strike: 2 Conductors Maximum 609 m • Door Status: 2 Conductors Maximum 609 m • REX: 2 Conductors Maximum 609 m • Controller-to-Input-Point: 2 Conductors Maximum 609 m	
Modular Configuration of Controller		
Modules	Modules maybe: • Ethernet Communication Adapter • 4 Reader Expansion Board • 8 Reader Expansion Board • 16 Relay Outputs and 16 Inputs • 16 Inputs • 8 Supervised Inputs • 16 Supervised Inputs	
ELECTRICAL		
Current	Current: 2.5A @ 24 VDC	
ENVIROMENTAL		
Temperature	Operating Temp of 0˚C to +46˚C	
Humidity	0% to 90% relative humidity non- condensing	
INTEGRATION		
Compatibility	Compatible with Third-Party Systems	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

==========

PROXIMITY CARD READER WITH PINPAD

This should meet the following specifications.

Proximity Card Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Both Indoor & Outdoor	
Type	Contactless (Proximity) Fixed Pin pad for Code Entry with Backlit Keys	
Dimensions	115mm x 155mm x 32m as a maximum	
Rating / Durability	IP55 as a minimum with IK10 (20J) impact resistance	
Construction	UL94 Polycarbonate as a Minimum The Keypad should be backlit and made of High impact clear Polycarbonate plastic. The characters are to be silk-screened on sub-surface of keys to eliminate wear.	
Finish Colour	Black , Charcoal or Light Gray as approved by the project architect / Interior Designer	
Material Compliance	Contactless smart card reader shall be fully compliant with Restriction of Hazardous Substances directive (RoHS) restricting the use of specific hazardous materials found in electrical and electronic products. The substances banned under RoHS are Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium (CrVI), Polybrominated Biphenyls (PBB) and Polybrominated Diphenyl ethers (PBDE).	
PROGRAMMING & SOFTWARE		
Keys	The Fixed sector keys should provide user with a defined key sector to allow them to select a key sequence to protect their Badge ID numbers and also enable the user select the source of their credentials.	
Smart Card Compatibility	Should securely read access Control Data from 13.56MHz contactless Smart Cards	
Compatibility	Universal compatibility with most access	

Proximity Card Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
to Systems	control systems. This is by outputting card data in compliance with the SIA AC-01 Wiegand standard.	
Read Range	Optimal read range and read speed for increased access control throughput. Contactless smart card reader shall provide the following typical contactless read ranges: • Up to 8.9 cm using ISO 15693 HID iCLASS card. • Up to 3.8 cm using ISO 15693 HID iCLASS Key or Tag • Up to 5.1 cm using MIFARE/DESFire card (CSN)	
Availability	Global, off-the-shelf availability.	
Programming	Built in compatibility across the product line without the need of special programming. This should ensure Secure access control data exchange between the smart card and the reader utilizing key diversification and mutual authentication routines.	
Reader Programming	The contactless smart card reader shall provide customizable reader behavior options either from the factory, or defined in the field through the use of pre-configured command cards. Reader behavior programming options shall include: • LED & Audio configurations • Disablement of reading specific card technologies (typically used after migration is complete to new technology). • ISO 14443A CSN (E.g. MIFARE/DESFire) output configuration. • Wiegand output spacing and timing.	
Control Formats	Backwards compatibility with legacy 125 KHz proximity access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit, and HID Corporate 1000 formats).	
Transmission Encryption	Reader shall be compatible with HID's iCLASS mutual authentication algorithm using 64-bit authentication keys. All RF data transmission between the card and reader shall encrypted using a secure algorithm to ensure that the communication between the card and reader can never be copied and repeated back to the reader (sniffing and replay).	
Indicators	Customizable behavior for indicator lights and audible tones. AUDIO BEEPER: Provides various tone sequences to signify: • Access Granted • Access Denied • Power up & • Diagnostics LIGHT BAR: A high-intensity light bar shall provide clear visual status in the following colours: • Red	

Proximity Card Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
	• Green • Amber The light bar shall provide uniform distribution of light. Thus eliminating bright individual light spots	
Safety	Contactless smart card reader shall be suitable for global deployment by meeting worldwide radio and safety regulatory compliance including: • UL294 (US) • cUL (Canada) • FCC Certification (US) • IC (Canada) • CE (EU) • C-tick (Australia, New Zealand) • SRRC (China) • MIC (Korea) • NCC (Taiwan) • iDA (Singapore)	
Mounting	Consist of two-piece design with mounting plate and either separate front bezel and reader body (totaling three-pieces) or combined front bezel/reader body (totaling two-pieces). This shall also be suitable for Mullion mounting through the use of universal international mounting holes	
Monitoring	Contactless smart card reader shall provide ability of an on-line "I'm Alive" message so the reader's functional health can be monitored at all times when paired with a compatible access control panel.	
Tamper Action & Warning	Contactless smart card reader shall provide the ability to transmit an alarm signal via and integrated optical tamper switch if an attempt is made to remove the reader from the wall. The tamper switch shall be programmable to provide a selectable action to provide a selectable action compatible with various tamper communication schemes provided by access control panel manufacturers. The selectable action shall include one of the following: • During a tamper state, the "I'm Alive" message is inverted. • The reader open collector line changes from a high state (5V) to a low state (Ground). • Upon reception of a "Reader Status Report Request" (0x67), the reader responds with a "Reader Tamper Status Report" (0x4B) responds. For more information, see HADP/OSDP Specification. .	
Expandability	The contactless smart card reader shall provide the ability to upgrade its application code through the use of pre-configured firmware cards. This feature shall allow previously installed readers be reconfigured to modify their behavior and capabilities as the project environment evolves.	

Proximity Card Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
	The reader shall also allow the reader firmware to be upgraded in the field without the need to remove the reader from the wall through the use of factory-provided Application Cards.	
ELECTRICAL		
Operating Voltage	5-16VDC, reverse voltage protected	
Current	Low Current: 55 mA AVG, 116 mA PEAK @ 12 VDC	
ENVIROMENTAL		
Temperature	Operating Temp of -35˚C to +65˚C (-31˚F to 149˚F)	
Humidity	5% to 95% relative humidity non- condensing	
INTEGRATION		
Compatibility	Compatible with Third-Party Systems	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========
==========

PROXIMITY CARD READER

This should meet the following specifications.

Proximity Card Reader		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Both Indoor & Outdoor	
Type	Contactless (Proximity)	
Dimensions	43mm x 155mm x 28m as a maximum	
Rating / Durability	IP55 as a minimum with IK10 (20J) impact resistance	
Construction	UL94 Polycarbonate as a Minimum	
Finish Colour	Black , Charcoal or Light Gray as approved by the project architect / Interior Designer	
Material Compliance	Contactless smart card reader shall be fully compliant with Restriction of Hazardous Substances directive (RoHS) restricting the use of specific hazardous materials found in electrical and electronic products. The substances banned under RoHS are Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium (CrVI), Polybrominated Biphenyls (PBB) and Polybrominated Diphenyl ethers (PBDE).	
PROGRAMMING & SOFTWARE		
Smart Card Compatibility	Should securely read access Control Data from 13.56MHz contactless Smart Cards	
Compatibility to Systems	Universal compatibility with most access control systems. This is by outputting card data in compliance with the SIA AC-01 Wiegand standard.	
Read Range	Optimal read range and read speed for increased access control throughput. Contactless smart card reader shall provide the following typical contactless read ranges: • Up to 8.9 cm using ISO 15693 HID iCLASS card. • Up to 3.8 cm using ISO 15693 HID iCLASS Key or Tag • Up to 5.1 cm using MIFARE/DESFire card (CSN)	

Proximity Card Reader		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Availability	Global, off-the-shelf availability.	
Programming	Built in compatibility across the product line without the need of special programming. This should ensure Secure access control data exchange between the smart card and the reader utilizing key diversification and mutual authentication routines.	
Reader Programming	The contactless smart card reader shall provide customizable reader behavior options either from the factory, or defined in the field through the use of pre-configured command cards. Reader behavior programming options shall include: • LED & Audio configurations • Disablement of reading specific card technologies (typically used after migration is complete to new technology). • ISO 14443A CSN (E.g. MIFARE/DESFire) output configuration. • Wiegand output spacing and timing.	
Control Formats	Backwards compatibility with legacy 125 KHz proximity access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit, and HID Corporate 1000 formats).	
Transmission Encryption	Reader shall be compatible with HID's iCLASS mutual authentication algorithm using 64-bit authentication keys. All RF data transmission between the card and reader shall encrypted using a secure algorithm to ensure that the communication between the card and reader can never be copied and repeated back to the reader (sniffing and replay).	
Indicators	Customizable behavior for indicator lights and audible tones. AUDIO BEEPER: Provides various tone sequences to signify: • Access Granted • Access Denied • Power up & • Diagnostics LIGHT BAR: A high-intensity light bar shall provide clear visual status in the following colours: • Red • Green • Amber The light bar shall provide uniform distribution of light. Thus eliminating bright individual light spots	
Safety	Contactless smart card reader shall be suitable for global deployment by meeting worldwide radio and safety regulatory compliance including: • UL294 (US) • cUL (Canada) • FCC Certification (US) • IC (Canada) • CE (EU) • C-tick (Australia, New Zealand)	

Proximity Card Reader		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
	• SRRC (China) • MIC (Korea) • NCC (Taiwan) • iDA (Singapore)	
Mounting	Consist of two-piece design with mounting plate and either separate front bezel and reader body (totaling three-pieces) or combined front bezel/reader body (totaling two-pieces). This shall also be suitable for Mullion mounting through the use of universal international mounting holes	
Monitoring	Contactless smart card reader shall provide ability of an on-line "I'm Alive" message so the reader's functional health can be monitored at all times when paired with a compatible access control panel.	
Tamper Action & Warning	Contactless smart card reader shall provide the ability to transmit an alarm signal via and integrated optical tamper switch if an attempt is made to remove the reader from the wall. The tamper switch shall be programmable to provide a selectable action to provide a selectable action compatible with various tamper communication schemes provided by access control panel manufacturers. The selectable action shall include one of the following: • During a tamper state, the "I'm Alive" message is inverted. • The reader open collector line changes from a high state (5V) to a low state (Ground). • Upon reception of a "Reader Status Report Request" (0x67), the reader responds with a "Reader Tamper Status Report" (0x4B) responds. For more information, see HADP/OSDP Specification. .	
Expandability	The contactless smart card reader shall provide the ability to upgrade its application code through the use of pre-configured firmware cards. This feature shall allow previously installed readers be reconfigured to modify their behavior and capabilities as the project environment evolves. The reader shall also allow the reader firmware to be upgraded in the field without the need to remove the reader from the wall through the use of factory-provided Application Cards.	
ELECTRICAL		
Operating Voltage	5-16VDC, reverse voltage protected	
Current	Low Current: 55 mA AVG, 116 mA PEAK @ 12 VDC	
ENVIROMENTAL		
Temperature	Operating Temp of -35°C to +65°C (-31°F to 149°F)	
Humidity	5% to 95% relative humidity non- condensing	
INTEGRATION		
Compatibility	Compatible with Third-Party Systems	

Proximity Card Reader		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========
==========

BIOMETRIC FINGERPRINT READER WITH PIN PAD

This should meet the following specifications.

Biometric Fingerprint Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Application	Indoor	
Type	Contactless (Proximity) Fixed Pin pad for Code Entry with Backlit Keys Fingerprint Biometric Enrolment	
Fingerprint Sensor Type	Optical	
Sensor Resolution	500dpi, 256-bit gray scale, 18 x 22 mm Sensor area	
Timing	Card Read < 0.5 Sec Fingerprint capture < 2 Sec, Typical 1 Sec Verification of captured Finger < 1 Sec	
Language Support	Field Enroller: English as a basic Reader: English as a Basic	
Dimensions	214mm x 106mm x 58m as a maximum	
Rating / Durability	IP55 as a minimum with IK10 (20J) impact resistance	
Graphical Display	LCD Screen. 60mm x 18mm viewing area, 120 x 32 resolution Factory preset to provide written instructions to the user. Fully Customizable and describes the function of the user function keys	
Construction	UL94 Polycarbonate as a Minimum The Keypad should be backlit and made of High impact clear Polycarbonate plastic. The characters are to be silk-screened on sub-surface of keys to eliminate wear.	
Finish Colour	Black , Charcoal or Light Gray as approved by the project architect / Interior Designer	

Biometric Fingerprint Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
Material Compliance	Contactless smart card reader shall be fully compliant with Restriction of Hazardous Substances directive (RoHS) restricting the use of specific hazardous materials found in electrical and electronic products. The substances banned under RoHS are Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium (CrVI), Polybrominated Biphenyls (PBB) and Polybrominated Diphenyl ethers (PBDE).	
PROGRAMMING & SOFTWARE		
Keys	The Fixed sector keys should provide user with a defined key sector to allow them to select a key sequence to protect their Badge ID numbers and also enable the user select the source of their credentials.	
Smart Card Compatibility	Should securely read access Control Data from 13.56MHz contactless Smart Cards	
Compatibility to Systems	Universal compatibility with most access control systems. This is by outputting card data in compliance with the SIA AC-01 Wiegand standard.	
Read Range	Optimal read range and read speed for increased access control throughput. Contactless smart card reader shall provide the following typical contactless read ranges: • Up to 8.9 cm using ISO 15693 HID iCLASS card. • Up to 3.8 cm using ISO 15693 HID iCLASS Key or Tag • Up to 5.1 cm using MIFARE/DESFire card (CSN)	
Availability	Global, off-the-shelf availability.	
Programming	Built in compatibility across the product line without the need of special programming. This should ensure Secure access control data exchange between the smart card and the reader utilizing key diversification and mutual authentication routines.	
Reader Programming	The contactless smart card reader shall provide customizable reader behavior options either from the factory, or defined in the field through the use of pre-configured command cards. Reader behavior programming options shall include: • LED & Audio configurations • Disablement of reading specific card technologies (typically used after migration is complete to new technology). • ISO 14443A CSN (E.g. MIFARE/DESFire) output configuration. • Wiegand output spacing and timing.	
Control Formats	Backwards compatibility with legacy 125 KHz proximity access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit, and HID Corporate 1000 formats).	
Transmission Encryption	Reader shall be compatible with HID's iCLASS mutual authentication algorithm using 64-bit authentication keys. All RF data transmission	

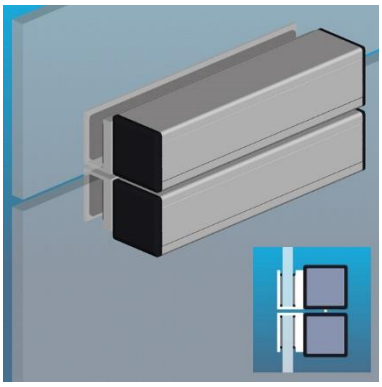
Biometric Fingerprint Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
	between the card and reader shall encrypted using a secure algorithm to ensure that the communication between the card and reader can never be copied and repeated back to the reader (sniffing and replay).	
Indicators	Customizable behavior for indicator lights and audible tones. AUDIO BEEPER: Provides various tone sequences to signify: • Access Granted • Access Denied • Power up & • Diagnostics LIGHT BAR: A high-intensity light bar shall provide clear visual status in the following colours: • Red • Green • Amber The light bar shall provide uniform distribution of light. Thus eliminating bright individual light spots	
Safety	Contactless smart card reader shall be suitable for global deployment by meeting worldwide radio and safety regulatory compliance including: • UL294 (US) • cUL (Canada) • FCC Certification (US) • IC (Canada) • CE (EU) • C-tick (Australia, New Zealand) • SRRC (China) • MIC (Korea) • NCC (Taiwan) • iDA (Singapore)	
Mounting	Consist of two-piece design with mounting plate and either separate front bezel and reader body (totaling three-pieces) or combined front bezel/reader body (totaling two-pieces). This shall also be suitable for Mullion mounting through the use of universal international mounting holes	
Monitoring	Contactless smart card reader shall provide ability of an on-line "I'm Alive" message so the reader's functional health can be monitored at all times when paired with a compatible access control panel.	
Tamper Action & Warning	Contactless smart card reader shall provide the ability to transmit an alarm signal via and integrated optical tamper switch if an attempt is made to remove the reader from the wall. The tamper switch shall be programmable to provide a selectable action to provide a selectable action compatible with various	

Biometric Fingerprint Reader With Pin Pad		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
	tamper communication schemes provided by access control panel manufacturers. The selectable action shall include one of the following: • During a tamper state, the "I'm Alive" message is inverted. • The reader open collector line changes from a high state (5V) to a low state (Ground). • Upon reception of a "Reader Status Report Request" (0x67), the reader responds with a "Reader Tamper Status Report" (0x4B) responds. For more information, see HADP/OSDP Specification.	
Expandability	The contactless smart card reader shall provide the ability to upgrade its application code through the use of pre-configured firmware cards. This feature shall allow previously installed readers be reconfigured to modify their behavior and capabilities as the project environment evolves. The reader shall also allow the reader firmware to be upgraded in the field without the need to remove the reader from the wall through the use of factory-provided Application Cards.	
ELECTRICAL		
Operating Voltage	5-16VDC, reverse voltage protected	
Current	Low Current: 55 mA AVG, 299 mA PEAK @ 12 VDC	
ENVIROMENTAL		
Temperature	Operating Temp of -35˚C to +65˚C (-31˚F to 149˚F)	
Humidity	5% to 95% relative humidity non- condensing	
INTEGRATION		
Compatibility	Compatible with Third-Party Systems	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========
==========

MAGNETIC DOOR CONTACT (SLIMLINE)

This should meet the following specifications.

Magnetic Door Contact (Slim line)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Mounting	The magnetic contact shall either be flush, surface or floor mounted depending on the type of door the contact is to be installed	
Cabling	All magnetic contacts shall be cabled with standard 2m wire.	
Operating Gap	The maximum operating gap shall be 9mm	
Fixing Screws	The mounting screws should be concealed to prevent tampering when installed	
Door Fitting	The contractor shall choose the proper model to fit the door and shall be responsible for all fixing materials and brackets to successfully and aesthetically mount the locks in the doors.	
Fixing Detail		
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========
==========

DOOR CLOSER

This should meet the following specifications.

Door Closer		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Operation	The required door closer shall be sufficient to close and lock the door without undue impact upon the components of an access control system	
Design	Universal design, used on all common door types Rack-and-pinion design	
Installation	Easy to install and does not require mounting back plates	
Closing speed	Adjustable closing speed via two independent valves 180 – 15	
Body	Cast aluminum body	
Projection	2-7/8" (73mm) projection	
Piston Diameter	1-3/8" (35mm) diameter piston	
Pinion Journals	5/8" (16mm) diameter pinion journals	
Valves	Standard, separate and independent, latch, sweep and back check intensity valves Staked valves	
Swing	All standard arm applications allow doors to swing 180°, conditions permitting	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

ELECTRIC STRIKE LOCK

This should meet the following specifications.

Electric Strike Lock		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
GENERAL		
Fitting	The required electric strike lock shall be fitted with 5/8" latch or 3/4" latch with 1/8" door gap. The exact model shall be coordinated with the Door Installer to fit the strike where it is going to be installed.	
Locksets	The electric strike shall be designed for use with locksets with up to 3/4" latch-bolts.	
Traffic	The quality construction shall fit high traffic applications.	
Profile	The electric strike shall have compact low profile design enabling quick and easy installation where jamb space is limited	
Features	The lock shall have at least the following features: • Latch position status standard • Keeper closed & deadlocked/unlocked status standard • Field selectable fail secure – failsafe • Field selectable voltage, 12/24V AC/DC • ¼" Horizontal alignment adjustment • Low profile, 1-3/16" deep • Plug-in wire connectors • Mounting tabs • Non-handed • All stainless steel parts with durable die cast body for corrosion resistance • Fewer moving parts for maximum life • Stainless steel standard with square corner faceplate • Aluminum standard with radius corner faceplate • ANSI/ BHMA A156.31, Grade 2	
ELECTRICAL		
Voltage Coil	Dual Voltage Coil: • 280/140mA @ 12/24V DC • 170/85mA @ 12/24V AC	
Latch Position Status	Latch Position Status (std): SPDT, Dry 3Amp @ 30V	
Keeper Closed &	Keeper Closed & Locked Status (std): SPDT, Dry 3Amp @ 30V	

Electric Strike Lock		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Locked Status		
Keeper Open/Closed Status	Keeper Open/Closed Status (optional): SPDT, Dry 3Amp @ 30V	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

ELECTROMAGNETIC LOCK (MAGLOCK)

This should meet the following specifications:

Electromagnetic Lock (Maglock)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Mounting	Surface mounted / Flush Mounted	
Sensor	Dry contact sensor for door condition indication (can be hooked up to an indication light or buzzer)	
Solenoid	Internally mounted	
Certification	Internationally recognized certification	
Concealing	Full concealment design	
Compatibility to Systems	Universal compatibility with all access control systems.	
Load	Single: 600 Kg (1200 lb.) Magnetic Lock Dual: 600 Kg (1200 lb.) Magnetic Lock (2 Wing Doors)	
ELECTRICAL		

Electromagnetic Lock (Maglock)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Power	Should functions on DC current for quiet operation	
Voltage	12 or 24 volt option	
Current	Low Current Draw. 1A	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

==========

EMERGENCY BREAKGLASS UNIT

This should meet the following specifications:

Emergency Break glass Unit (Hinged Cover)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
GENERAL		
Operating Voltage	24V dc	
Connections	4-Way Terminal Block	
Operating method	Glass element with plastic safety film or resettable plastic element with integral alarm indicator	
Test/reset facility	Unique key	
Colour	Green to international standards	
Illustration	"IN CASE OF EMERGENCY BREAK GLASS" Writing	
IP rating	IP42	
Compatibility	Should be compatible with the access control system	
Protection	In-built Short circuit Isolators	
Indication	Red Status LED	
Status Notification	LED set to blink to indicate normal communication with the system under normal conditions LED automatically illuminates if unit is triggered	
Mounting	Surface Mount / Recessed	
Depth	Maximum depth as 87mm including base for Surface mount	
ENVIROMENTAL		
Temp. range	-10˚C to +55˚C	
ACCESSORIES		
Semi recess Bezel	To be used for all flush call points	
Hinged Clear cover	All break glass should come with protective hinged cover designed to prevent accidental activation of call point. (as in image above)	
Resettable Plastic Element	All Call points should come with a Resettable plastic element which is designed to replace the standard glass element for speed and simplicity of resetting after activation. The Resettable	

Emergency Break glass Unit (Hinged Cover)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
	element should contain a high visibility flag which along with the high visibility front mounted LED provides clear indication of when the call point has been triggered	
Replacement Test Key	All Call Points Should be supplied with a test key. This will be used to test the call point as well as to open the call point for installation purposes or to replace the element.	
Replacement Glass Elements	Each Call point should come with a spare glass element to be handed over to the system owner for replacement in future.	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

DOOR RELEASE KEYSWITCH

This should meet the following specifications.

Door Release Key switch		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Slim	
Dimensions	86mm (H) X50mm (W)	
Finish	Brushed Finish Stainless Steel	
Release mechanism	Special Key release (Anti-Copy)	
No. Of Keys	3No.	
Application	Indoor & Outdoor use	
ELECTRICAL		
Current	Max Continuous Current: 10A @ 12VDC	
Voltage	12VDC	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

REQUEST TO EXIT (RTE) SWITCH

This should meet the following specifications:

Request To Exit (RTE) switch		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Type	Wide / Slim (As to be specified in Bills)	
Dimensions	Wide: 86mm (H) X 86mm (W) Slim: 86mm (H) X 50mm (W)	
Finish	Brushed Finish Stainless Steel	
Illustration	"Press button to open door" pictogram	
Release mechanism	Wide: Normally Open - Common - Normally Closed Slim: Single Pole Press-To-Make	
Application	Indoor & Outdoor use	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========
==========

PROXIMITY ACCESS CARD (ORDINARY)

This should meet the following specifications.

Proximity Access Card (Ordinary)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Function	Function as an access control card, used with access readers to gain entry and exit to/from controlled portals and to hold identification information specific to the user.	
Frequency	Shall be a passive device, with an operating frequency of 125KHz.	
Code Number	The card shall contain a 14 digit unique number.	
Authentication Key	Each application area shall contain a unique diversified authentication key to reduce the risk of compromised data or duplicate cards.	
MATERIAL & CONSTRUCTION		
Material	Card shall be made of PVC materials. Card surface shall be glossy and of a material compatible with direct to card dye-sublimation or thermal transfer printing. Card construction shall meet durability requirements of ISO 7810.	
Range	TK4100 Card for access control (125KHz/134.2KHz) Other Chip IC:EM4200, EM4305, T5577,Mifare 1K,Mifare Ultralight, etc.	
Thickness	TK4100 Card Thickness:0.8~1.2mm	

Proximity Access Card (Ordinary)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Size	CR80 86 x 54mm, or customized	
Printing	Full color offset printing on both sides	
Magnetic Strip	300oe, 2750oe, 4000oe	
Notch	Should come complete with notch for clipping Neck straps	

==========

ACCESS CONTROL SERVER

This should meet the following specifications:

Access Control Server		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Model	HP Proliant DL580G5 X7460 16GB (4P) or equivalent to approval	
Operating System	Microsoft Windows 2008 Server R2 ready.	
Processor	Intel Leona X7460 (6 core, 2.67GHz, bomb L3, 130W)	
Cash Memory	12MB 1.3	
Memory Type	X7460 models: 8GB PC2-5300 Fully buffered DIMMs (DDR2 667 Hz)	
Memory	32 GB RAM, OEM installed	
Storage Controller	4P Base Models: HP Smart Array P411i/512MB BBWC controller	
Internal Hard Disk	• Capacity: 16 X boob SAS of 10k Hot plug z.s-inch Enterprise HDD • CD ROM Drive: 24 X IDE DVD ROM/CD-RW Drive • Operating System: Red Hat Linux 5 or Microsoft Windows 2008 Server R2 Ready • LAN Card: Dual NC371i Multi-function Gigabit Server Adaptors (Embedded)	
HP Storage Works SCSI	• Tape Drives, External: 1 x external LTO-3 Ultrium 960 Drive • Power Supply (4) standard (third and fourth power supplies for redundancy) • Form Factor: Rack mountable, with complete mounting kit • SAN SWITCH: TWO (2) HP Storage Works 8/16 SAN Switch with licenses and 24 x HP Storage Works 8/4Gb SW Single PK SFP Transceiver	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

ACCESS CONTROL WORKSTATIONS

This should meet the following specifications:

Access Control Workstations		
Feature	**Minimum Requirements**	**Bidder's Response / Comment (√ or X)**
GENERAL		
Model	HP dc7900 Convertible Minitower or equivalent to approval	
Operating System	Genuine Microsoft Windows 2007 ready & Included	
Processor	Intel Pentium Duo Core 2 with Processor as E8500 3.16 GHz 6 MB L2 cache 1333 MHz FSB	
Cache Description	1MB	
Chipset	Intel Q45 chipset	
Memory	4 GB 800 MHz DDRZ SDRAM PC2-4200 (533 MHz) Non-ECC Single chip OEM installed	
Hard Drive	Internal: 250 GB 7200 rpm SATA 3.0 Gb/s Hard Drive	
Hard Disk Controller	250 GB 7200 rpm SATA 3.0 Gb/s	
Optical Drive	SATA DVDV-RW Supermulti Lightscribe (Double Layer/Dual Format)	
Mouse / Pointing Device	USB z-Button Optical Scroll Mouse with mouse pad Cache	
I/O (Input/Output) Ports	USB (2 rear and 2 front) 1 standard serial and 1 optional serial, 1 RJ-45, 1 VGA, audio in/out; headphone and microphone	
Keyboard	USB Standard QWERTY Keyboard	
Graphic(s) Card	Intel integrated Graphics Media Accelerator 4500	
Monitor	17" LCD TFT wide angle view antiglare / static coat	
Network Characteristics	Intel Pro/1000 CT PCle xl Gigabit NIC	
Software/ driver and utilities	Preloaded Software: Adobe Acrobat Reader, Intervideo, WinDVD	

Access Control Workstations		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
Multimedia	Integrated High Definition audio with ADI1884 coded and embedded Stereo Speakers (A11 speakers are stereo)	
Power	220v power supply – Active PFC, supplied with square pins power cable.	
WARRANTIES		
Warranty	3-Year Warranty and Support as a Minimum	

==========

ADMINISTRATION EQUIPMENT CABINET (FLOOR STANDING)

The Administration Cabinet (Floor Standing) should meet the following specifications.

ADMINISTRATION EQUIPMENT CABINET (FLOOR STANDING)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Size	Width – 800mm Depth – 1200mm Height – As described in Bills of Quantities (42U, 32U, etc.)	
Finish	Finish with Epoxy Powder Coating (RAL 9004 Black)	
Materials	• SPCC Cold Rolled Steel • Thickness: Mounting Profile 2.0mm, 19-inch Panel Mounting 1.5mm, Others 1.2mm	
Compliance	Comply with ANSI/EIA RS-310-D, IEC297-2, DIN 41491; PART 1 DIN 41494; PART 7, GB/T 3047.2-92, ETSI Standard.	
Protection	IP20	
Static Load	Load rating at 800kg	
Frame	Full Vented Top Frame with Front / Rear / Side Cable Entrance	
Top Tray	6 x 4-inch Top Fan Tray with Guard & Filter (Low Noise)	
Doors	• SIDE DOORS: 2 x Lift Off Type with Quick Release Catch & Cam Lock • FRONT DOOR: 1 x Perforated (75%) Arc-Fold with Swing • REAR DOOR: 1 x Double-section Full Perforation with Swing Handle Lock (Hexagon Honey-Comb)	

Locks	Handle Lock (Hexagon Honey-Comb)	
Cable Management	• x Front Cable management c/w Cable Ring • 1 x Vertical Cable Tray	
Panel Mounts	• 1 x Set Panel Mount Support • 4 x Panel Mount with Unit Indication & Silk Screen Numbering	
Base Frame	1 x Base Frame with Provision of Cable Entrance	
Wheels	• 1 x Set of Heavy Duty Castor Wheels with Lock Mechanism • 1 x Set of Leveling Stand	
Trays	2 x Vented Equipment Fixed Tray	
Power Supply	1 x Power Distribution Unit (12 Way Vertical ZeroU PDU) with 13A UK-Type Sockets for 240V AC	
Accessories	1 Packet of M6 Cage Nuts Assembly (50pcs)	
WARRANTIES		
Warranty	3-Year Warranty and Support	

==========

ADMINISTRATION EQUIPMENT CABINET (WALL MOUNTED)

The Administration Cabinet (Wall Mounted) should meet the following specifications.

ADMINISTRATION EQUIPMENT CABINET (WALL MOUNTED)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
GENERAL		
Size	Width – 600mm Depth – 600mm Height – As described in Bills of Quantities (16U, 9U, etc.)	
Finish	Finish with Epoxy Powder Coating (RAL 9004 Black)	
Materials	• SPCC Cold Rolled Steel • Thickness: Mounting Profile 2.0mm, 19-inch Panel Mounting 1.5mm, Others 1.2mm	
Compliance	Comply with ANSI/EIA RS-310-D, IEC297-2, DIN 41491; PART 1 DIN 41494; PART 7, GB/T 3047.2-92, ETSI Standard.	
Protection	IP20	
Static Load	Static Load rating at 60kg	
Frame	Full Vented Top Frame with Front / Rear / Side Cable Entrance	
Fan	2 x 4-inch Fan (Low Noise) on Vented Top Flush Panel	
Doors	• SIDE DOORS: 2 x Side Door with Cam Lock • FRONT DOOR: Tempered glass Door with Cam Lock and 180 Degree Swing	
Locks	Handle Lock (Hexagon Honey-Comb)	
Cable Entance	Top and Bottom modular cable	

ADMINISTRATION EQUIPMENT CABINET (WALL MOUNTED)		
Feature	**Minimum Requirements**	**Bidder's Response / Comment** (√ or X)
	entrance	
Panel Mounts	4 x Panel Mount with Unit Indication & Silk Screen Numbering	
Mounting	1 x Integrated Wall Mounting Panel with support to hold the cabinet to its maximum static load	
Trays	2 x Vented Equipment Fixed Tray	
Power Supply	1 x Power Distribution Unit (6 Way PDU) with 13A UK-Type Sockets for 240V AC	
Accessories	1 Packet of M6 Cage Nuts Assembly (50pcs)	
WARRANTIES		
Warranty	3-Year Warranty and Support	

PARTICULAR SPECIFICATIONS

AIR CONDITIONING INSTALLATIONS

HVAC EQUIPMENT SPECIFICATIONS

	EQUIPMENT	SPECIFICATIONS		YES/NO
1	**Outdoor Unit / Condensing unit**	Manufacture	Carrier/Trane/Mitshubishi/York/Daikin/Mekkar/ Toshiba AHRI/Eurovent certified	
2	**Fan Coil units**	FCU-1 Rating cooling Rating	11.2kw AHRI/Eurovent certified KEBS Certified	
		FCU-2 Rating cooling Rating	9kw AHRI/Eurovent certified KEBS Certified	
		FCU-3 Rating cooling Rating	7.1kw AHRI/Eurovent certified KEBS Certified	
		FCU-4 Rating cooling Rating	5.6kw AHRI/Eurovent certified KEBS Certified	
		FCU-5 Rating cooling Rating	4.5kw AHRI/Eurovent certified KEBS Certified	
		FCU-6 Rating cooling Rating	3.6kw AHRI/Eurovent certified KEBS Certified	
		FCUs General Specification		
		Type	as specified	
		Catalogue No.		
		Manufacture	Carrier/Trane/Mitshubishi/York/Daikin/Mekkar/ Toshiba	
		Certification	Eurovent certified	
			AHRI certified	
		• room thermometer and controls,	Included	
		• EC Fan motor with internal overload protection	Included	
		• washable Filter drier	Included	
		• Control diverter Valve	Included	
		• Service pressure tap port	Included	

3		• pressure gauge	Included	
		• 24volt control circuit with 150 VA transformer	Included	
		• Indoor coils with internally finned copper tubes and alumminium plate fins	Included	
		• water sensor	Included	
		• High efficiency washable air filters		
	Difusers:	Type	Supply Diffusers	
		size	1200 x 200mm 600 x 600mm	
		Material	Powder coated Aluminiun	
		Manufacture	Tecnalco/systemair/sodeca/Dynair	
		Type	Retun Diffusers	
		size	1200x 200mm 600 x 600mm	
		Material	Powder coated Aluminiun	
		Manufacture	Tecnalco/systemair/sodeca/Dynair	
4	**Pre Insulated Ducts**	Material	**Pre Insulated Ducts** Polysocianate board/ rigid phenolic insulated panels faced by an aluminium foil	
5	**Pre Insulated flexible Ducts**	Fire rating	Fire rated and fire retardant B Grade and above	
6	**Pipe Work**	Pipe Specifation	ASTM a 53	
		Pipe Type	Galvanised Black Steel Schedule 40 pipe	
		Pressure Rated	pressure of 25bar.	
		Connection type	Grooved	
7	**Fans**	Supply Fan Toilet Exctract Fan	As system air, sodecs,dynair or Xpelair	
		Type	as specified (Box, jet and inline fans)	
		Cataloge No.		
		Manufacture	Systemair / sodeca dynair	
		Certification	Eurovent certified	
			AHRI certified	
		EC Fan motor with internal overload protection	Included	

		Electronic fan controller	Included	
		Noise rating	≤ 47dB	
8	**Fan Flexible connections**	Material	rubber bellows or neoprene	
		Fire rating	Grade A	

PARTICULAR SPECIFICATIONS

PLUMBING & DRAINAGE AND FIRE

FIGHTING EQUIPMENT.

SPECIFICATIONS

Item		Description	Specifications	COMPLIANCE (YES / NO)
1	Sanitary Fittings	Wall Mounted WC	Meke: Durastyle or equivalent	
		Concealed Cistern	Meke: Durastyle or equivalent	
		Bidet Hand Shower	Meke: Durastyle or equivalent	
		Toilet Paper Holder	Meke: Durastyle or equivalent	
		Toilet Brush	Meke: Durastyle or equivalent	
		Accessible Wall Mounted WC	Meke: Durastyle or equivalent	
		Toilet Grab Bars Set	Meke: Durastyle or equivalent	
		Hand Mixer Angle Valve	Meke: Durastyle or equivalent	
		Wash Hand Basin	Meke: Durastyle or equivalent	
		Accessible Basin	Meke: Durastyle or equivalent	
		Basin Grab Bar	Meke: Durastyle or equivalent	
		Shower Floor Drain	Meke: Durastyle or equivalent	

Item		Description	Specifications	COMPLIANCE (YES / NO)
		Towel Rail	Meke: Durastyle or equivalent	
		Kitchen Sink Kitchen sink underheater	Meke: Duravit or equivalent Meke: Heatrae sadia streamline or equivalent	
		Kitchen sink tap	Meke: Ha`nsgrohe Metris M71 Select 2-hole single lever kitchen mixer or equivalent.	
		Urinal	Meke: Duravit or equivalent	
2	Undersink Filtration (RO)	Undersink Reverse Osmosis	Model Dayliff or equal and approved 6 stage mini RO Capacity 400 litres/day	
3	Fire fighting	Fire Hose Reel Cabinet	Brand: Bristrol/Sffeco/NAFFCO or equivalent Material: Stainless steel Standard: BS EN 671-1 Dimensions: 1750(H) x 1000(W) x 500(D)	
		Portable fire extinguishers	Brand: Bristrol/Sffeco/NAFFCO or equal and approved	
4	Plumbing Pipes & Fittings	Cold water Pipes	Pipes Brand: Aquatherm/Alprene/ Wefatherm/Dizayn or equal and approved PN 20 Valves: AVK/Nibco/Crane or approved equal	
		Hot water Pipes	Pipes Brand: Firat or equal and approved PN 20 Valves: AVK/Nibco/Crane Pipes Brand: Sensus / B Meters or equal and approved	
		Water meter	Communication: GPRS/Ethernet/Wifi concentrator for M-Bus networks for transmission to PC Valves: AVK/Nibco/Crane	

Item		Description	Specifications	COMPLIANCE (YES / NO)
5	Drainage Pipes & Fittings	Drainage Pipes	Pipes Brand Material: HDPE	

SECTION VI- BILLS OF QUANTITIES

A. Notes and Sample Items for Preparing a Bill of Quantities

1. These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the Tender Documents. Priced Bills of Quantities shall be part and parcel of the Contract Documents.

2. The objectives and purpose of the Bills of Quantities are to provide sufficient information on the specifications, descriptions and quantities of Works to be performed to enable tenders to be prepared efficiently and accurately and when a contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed. In order to attain these objectives, Works should be itemized in the Bill of Quantities insufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and clear as possible.

3. The Bills of Quantities should be divided generally into the following sections:
   a) Preambles
   b) Preliminary items
   c) Work Items
   c) Daywork Schedule; and
   d) Provisional items
   e) Summary.

4. NOTES TO PREPARING PREAMBLES

4.1 The Preambles should include only those items that constitute the cost of the works but would not be priced separately as they are expected to be included in the unit prices. Care should be taken to ensure that these items are not are petition of the conditions of contract. The Preambles should indicate the inclusiveness of the unit prices and should state the methods of measurement that have been adopted in the preparation of the Bill of Quantities, that are to be used for the measurement of any part of the Works. The units of measurement and abbreviations should be defined and any mandatory national units defined and described. The methods of and procedure for re- measurement should be described in the Preambles.

4.2 Units of Measurement - The following units of measurement and abbreviations shall be used, unless other national units are mandatory in Kenya.

Unit	Abbreviation	Unit	Abbreviation
cubic meter	m^3 *or* cu m	millimetre	mm
hectare	ha	month	mon
hour	h	number	nr
kilogram	kg	square meter	m^2 *or* sqm
lump	ls	square millimeter	mm^2 *or* sq mm
sum	m	week	wk
meter	t		
metric ton			

4.3 The Bills of Quantities shall be read in conjunction with the Instructions to Tenders, General and Special Conditions of Contract, Technical Specifications, and Drawings.

4.4. The quantities given in the Bills of Quantities are estimated and partly provisional and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Architect and valued at the rates and

prices tender in the priced Bills of Quantities, where applicable, and otherwise at such rates and prices as the Architect may fix within the terms of the Contract.

4.5. The rates and prices tender in the priced Bills of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.

4.6. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.

4.7. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bills of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

4.8. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. References to the relevant sections of the Contract documents shall be made before entering prices against each item in the priced Bills of Quantities.

4.9 Provisional Sums and contingency sums included and so designated in the Bills of Quantities shall be expended in whole or in part at the direction and discretion of the Architect in accordance with Sub-Clause 13.5 and Clause 13.6 of the General Conditions of contract.

4.10 In preparing the Bills of Quantities, notes should be removed as they are intended to guide the person preparing the Tender Documents. The Contractor must allow in his rates for any costs associated with and complying with the requirements in the Preambles.

4.11 Should a tenderer/contractor not price any item in any section of the Bills of Quantities including Preliminary items, it will be assumed that he/she has spread its cost in other areas that he/she will have priced. Therefore, the item or items will be executed without any additional costs or without being treated like variations.

5. NOTES ON PREPARING BILLS OF QUANTITIES

5.1 The Preliminary Items should be limited to tangible items that should be priced by the tenderer, are identifiable and can be priced separately and included in the interim valuations precisely. Such items may include such items as site office, notice boards, and other temporary works, otherwise items such as security for the Works which are primarily part of the Contractor's obligations should be included in the Contractor's rates.

5.2 The work items in the Bills of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. Such groups could be ground excavations, structures, external works, services, etc. General items common to all parts of the Works may be grouped as a separate section in the Bill of Quantities.

5.3 Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage or waste. Quantities should be rounded up where appropriate.

5.4 Where the measured items a redeemed not to be exact because of the likelihood that the scope can change during the execution of the works, such items could be subject to re-measurement, the word **"provisional"** should be used to identify such cases. Where whole sections of the work items fall in this class, for example foundations, they should be labelled "Provisional Quantities" or "Provisional Items" so that the Tenderer/Contractor is advised up front that such items are subject to re-measurement to done before such work is cover-up.

5.5 All items that have not been measured and therefore not subject to tenders pricing should be listed in the Bills of Quantities as **Provisional Sums** for particular item or class of Work, which may be subject to a nominated subcontract or separate measurements at a later date during the execution of the works. For example, if it is deemed not possible to measure electrical works before going to tender because detail designs are not ready, a provisional sum can be allowed in the Bills of Quantities for "Installation of Electrical Works" to be executed later when actual design details are completed. To the extent not covered above, there should be in the Bills of Quantities a general provision for physical and financial contingencies made as a "Provisional Sum for

Contingencies" and "Provisional Sum for Fluctuations". The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.

5.6 Provisional sums to cover specialized works normally carried out by Nominated Sub Contractors should be avoided and instead Bills of Quantities of the specialized Works should be included as a section of the main Bills of Quantities to be priced by the Main Contractor. The Main Contractor should be required to indicate the name(s) of the specialized firms he proposes to engage to carry out the specialized Works as his approved domestic sub-contractors. Only provisional sums to cover specialized Works by statutory authorities should be included in the Bills of Quantities.

5.7 A Daywork Schedule should be included if the probability of unforeseen work, outside the items included in the Bill of Quantities, is relatively high. To facilitate checking by the Procuring Entity of the realism of rates quoted by the tenderers, the Daywork Schedule should normally comprise:

i) A list of the various classes of labor, and materials for which basic.

ii) Daywork rates and prices for various categories of labor are to be inserted by the tenderer, together with a statement of the conditions under which the Contractor will be paid for Work executed on a Daywork basis.

iii) A percentage to be entered by the tenderer against each basic Day work item.

iv) Subtotal amount for labor, materials and plant representing the Contractor's profit, overheads, supervision and other charges.

5.8 The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with provisional sums for Daywork, Provisional sums and Contingencies, and provision for Total Costing. The last line should allow for tenderer to indicate any discounts before arriving at a total cost carried forward to the Form of Tender.

BILLS OF QUANTITIES

(a) Preambles

1. The method of measurement of completed work for payment shall be in accordance with standard method of measurements.

2. The Site is situated in Nairobi Ngara area. It is approximately Three Kilometers from Nairobi CBD. Access to the siteshall be through Kolobot Road which is an existing public road. Any damage caused to the surfaces of this road shall be made good at the Contractor's expense. The Contractor shall visit the site and acquaint itself with its nature and position, the nature of the ground, substrata and other local conditions, positions of existing power, water and other services, access roads or any other limitations that might affect his cost or progress. No claim for extras shall be considered on account of lack of knowledge in this respect.

3. The Contractor shall obtain the Architect's approval on the siting of all temporary buildings, spoil heaps, temporary access path, and storage of materials. The Contractor shall also obtain the Architect approval and direction regardingthe use of any materials found on the Site.

4. The drawings used in the preparation of these Bills of Quantities can be inspected at the offices of the Procuring Entity or Procuring Entity's Representative during normal working hours. Two sets of the Working Drawings shall be provided to the contractor but additional copies shall be provided at a cost to be determined by the Engineer.

5. The Contractor shall allow for the payment of all bank charges in connection with the procurement of Bank Guaranteesand stamp charges in connection with this contract Agreement.

6. The Contractor shall carry out the various sections of the Works in such an order as the Architect May direct. The Procuring Entity reserves the right to occupy the Works by sections on completion provided that such occupation is considered to be both practical and reasonable and will not interfere with the Works. The Contractor shall allow any costs associated with such occupation.
7. The main Contractor will be fully responsible for paying his Sub-Contractor but the Procuring Entity reserves the rightin very exceptional circumstances to make such payments direct in the interests of the project where the completion thereof might be jeopardized by any dispute or vicariousness between the Contractor and the Sub- Contractor involve.
8. The Contractor shall complete and deliver the Works in the period inserted in the Form of Tender as his time for completion of the Works from the date for Possession, to be agreed with the Engineer. The Contract Period is presumed to have been calculated making due allowance for seasonal inclement weather conditions. No claim for extension of time due to the normal inclement weather for this area shall be entertained.

9. The Contractor shall, upon receiving instructions to proceed with the Works, draw up a Programme and Progress Chartsetting out the order in which the Works are to be carried out, with the appropriate dates thereof. This Chart shall be agreed with the Architect and no deviation from the order set out in it will be permitted without the written consent of the Engineer. The Contractor will be responsible for arranging the above programme with all his sub-Contractors andSpecialties. The Contractor shall allow in his rates for carrying out this exercise, and for updating it as required.

10. The Contractor shall submit to the Architect on the first day of each week or such longer period as the Architect fromtime to time direct, a Progress Report and any information for the proceeding period, showing the progress during theperiod and the up-to-date cumulative progression all important items of each section or portion of the Works.

11. The Contractor shall arrange for photographs of the Site to be taken by a professional photographer approved by the Engineer. The Photographs shall provide a record of the Site and adjacent are as prior to the commencement of the Works and shall cover such portion of the works in progress and completion as the Architect shall direct. All prints shall be full plate size, un-mounted, and marked on the reverse side with the date of exposure, identification reference and brief description. The copyright of all photographs shall be vested in the Procuring Entity. The negatives and fourprints from each negative shall be delivered to the Architect within two weeks of exposure.

12. Figured dimensions are to be followed in preference to dimensions scaled from the Drawings, but whenever possible dimensions are to be taken on the Site or from the buildings. Before any work is commenced by Sub- Contractors or Specialist Firms, dimensions must be checked on the site comparable dimensions shown on the drawings. The Contractor shall be responsible for the accuracy of such dimensions.

13. Prior to commencement of any work the Contractor is to ascertain from the relevant Authorities the exact position, depth and level 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 services shall be reported immediately to the Architect and the relevant Authority and shall be made good to their satisfaction at the Contractor's expense. Where appropriate the Contractor shall open up the ground in advance of the main work by hand digging if necessary, to locate precisely the position and details of the services which are likely to affect his operations.

14. 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 by such route as are permitted by the Authorities.

15. The Contractor will be required to make good, at his own expense and damage he may cause to the present road surface and pavements within or beyond the boundary of the Site, during the period of the works. All existing paths, storm water channels, etc., that may be destroyed or damaged during the progress of the Works shall be reinstated by the Contractor to the satisfaction of the Engineer.

16. The Contractor is to allow for complying with all instructions and regulations of the Police Authorities.

17. All water shall be fresh, clean and pure, free from earthly, vegetable or organic matter, acid or alkaline substance in solution. The Contractor shall provide at his own risk and cost all water for use in connection with the Works, (including works of sub–contractors). If need be, he shall make arrangements with the Local Water Authority for the installation of a separate meter for all water used by him throughout the Contract and pay all cost and fees in connection therewith. He shall also provide temporary storage tanks and tubing, etc., as may be necessary, and clear away at completion.

18. The Contractor shall provide all artificial lighting and power for his own use on the Works, (including Sub – Contractor's) including all temporary connections, wiring, fittings, etc., and clearing away on completion. The Contractor shall pay all fees and obtain all permits in connection there with.

19. The Contractor shall constantly keep on the Works a Literate English-speaking Agent or Representative, competent and experienced in the kind of work involved, who shall give his whole time to the superintendence of the works. (Including works of sub – contractors). Such Agent or Representative shall receive on behalf of the Contractor directions and instruction from the Engineer, and such directions and instructions shall be deemed to be given to the contractor in accordance with the Conditions of Contract. The Agent shall not be replaced without the specific approval of the Engineer.

20. The Contractor shall ensure that the safety of his work people and all authorized visitors to the site are protected at all times. In particular, there shall be the proper provision of guardrails to scaffolding, protection against falling materials, tools on site, dust, nail and other sharp objects. The site shall be kept tidy and clear of dangerous rubbish. The Architect shall be empowered to suspend work on site should it be considered this condition is not being observed and no claim arising from such suspension will be allowed.

21. The areas available to the Contractor for work yards, offices and other facilities shall be directed by the Architect and any existing features to remain shall be protected from damage throughout the Contract Period and handed back in good condition when they are vacated at the end of the Contract. If additional areas are required, the contractor shall source then at own cost.
22. The Contractor shall give the Architect reasonable notice of the intention to set out or take levels for any part of the Works so that arrangements may be made for checking the work. The accuracy of setting out and leveling shall be within the tolerances specified in the Specifications or on the Drawings. The checking of setting out or leveling by the Architect shall not relieve the Contractor of his duties or responsibilities under the Contract.
23. The Contractor must take steps necessary to safe guard and shall beheld fully responsible for any damage caused to existing and adjacent property, including buildings that are not a subject of demolition. He shall make good at his own cost damage to persons and property caused there on, and he shall indemnify the Procuring Entity against any loss or claim that may arise.

24. The Contractor shall take such steps and exercise such care and diligence as to minimize nuisance arising from dust, noise or any other cause to the occupiers of the existing and adjacent property. He must provide such temporary and special screens and tarpaulins or gummy bags, hoarding, barriers, warning signs etc. as he considers necessary and sufficient for the protection of the existing and adjacent property and or prevention of nuisance etc. as directed by Engineer.

25. The Contractors attention is drawn to the standards levy order which was amended on 15th October 1998.Legal noticeNo.154 of 1998. The Contractor is required to pay a monthly level of 0.2% of his factory price of construction workswith effect from January 1999. Tenderer shall allow for this in the build-up of his rates.

26. The Contractor shall provide temporary sheds, offices mesh rooms, sanitary, accommodation and other temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.

27. Contractor shall provide/build labor camp sat areas to be agreed with the Engineer. Labor camps shall be complete with sanitary accommodation and fencing gates.

28. The Contractor must provide the necessary toilet facilities to the requirement and satisfaction of the Health Authorities and maintain the same in a thoroughly clean and sanitary condition and pay all conservancy fees during the period ofthe Works and remove when no longer required.

29. The Contractor shall provide at his own risk and cost all watching and lighting as necessary to safeguard the Works, Plant and materials against damage and theft.
30. The Contractor shall provide all necessary hoists, tackle, plant, equipment, vehicles, tools and appliances of every description for the due and satisfactory completion of the Works and shall remove the same on completion. All such plant, tools and equipment shall comply with all regulations in force throughout the period of the Contract and shall be altered or adopted during the Contract period as may be necessary to comply with any amendments in or additionsto such regulations.

31. Provide, erect and maintain all necessary scaffolding, sufficiently strong and efficient for the due performance of the works, including Sub-Contract Works, provide special scaffolding as required by Sub-Contractors, alter and adopt allscaffolding as and when required during the Works, and remove on completion. No scaffolding is measured here in after and the Contractor must allow in his rates for this.

32. The Contractor shall take all necessary precautions such as temporary fencing, hoarding fans, planked footways, guard–rails gantries screen, etc., for the safe custody of the Works, materials and public protection and adjacent properties.
33. Cover up all and protect from damage, including damage from inclement weather, all finished work and unfixed materials, including that of Sub-Contractors, etc., to the satisfaction of the Architect until the completion of the Contract.
34. The Contractor shall, after completion of the works, at his own expense, remove and clear away all surplus excavateddemolition materials, plant, rubbish and unused materials and shall leave the whole of the Site and Works in a clean and tidy state to the satisfaction of the Engineer, sheds, camps, etc. Particular care shall be taken to leave clean all floors and windows and tore move all paint and cement all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection there with.
35. Concrete test cubes shall be prepared in a set of three, as described including testing fees, labor and materials, makingmolds, transport, handling, etc. Allow in your rates for making at least four cubes on each occasion, from different batches; the concrete being taken from the point of deposit.
36. The Contractors hall furnish at the earliest possible opportunity before work commences, and at his own cost, any samples of materials and workmanship that may be called for by the Architect for the approval or rejection, and any further samples in the case of rejection, until such samples are approved by the Engineer. Such samples, when approved, shall be the minimum standard for the work to which they apply. The procedure for submitting samples ofmaterials for testing or approval and the method of marking for identification shall be as laid down by the Engineer. The Contractor shall allow in his Tender for such samples and tests, including those in connection with his Sub- Contractors work.

37. The Contractors attention is drawn to the Finance Bill of the year 2000/2001 on withholding tax on contractual payment section 35(7) (i) (ii) which became effective on 1st July 2000. A 3% withholding tax will be applicable to allinterim payments for work done. The contractor shall allow for any costs arising resulting there from in the build-up of rates.

38. Blasting will only be allowed with the express permission of the Architect in writing. All blasting operations shall becarried out at the Contractor's sole risk and cost, in accordance with any Government regulations in force for the timebeing, and any special regulations laid down by the Architect governing the use and storage of explosives.

39. The National Construction Authority is a state corporation established under the national construction authority Act No.14 of 2011. The broad Mandate of the Authority is to oversee the construction industry and coordinate its development. The National Construction Authority Regulations 2014 with an effective date of 6th June 2014, regulation25, - Allow 0.5% of the tender sum/contract sum for construction levy.

40. The Contractor attention is drawn to Finance Bill of 1993 where VAT was introduced in all contracts for constructionservices. The tenderer is also drawn to VAT Act Cap 476 clause 19(9). The tenderer must allow for VAT 1.19 as instructed elsewhere.

41. The contractor shall allow and pay for all insurance to cover risks and indemnities required Items 17 and 18 of the Conditions of contract and also specified in the Special Conditions of Contract.

BILL NO. 1 - PRELIMINARY ITEMS

ITEM No.	DESCRIPTION	AMOUNT
1.	The Contractor shall provide, or erect and maintain an approved lock-upoffice for the sole use of the Architect and his own site staff. The office,which will have a total floor area of not less than ----------square metres, will be divided into two separate interconnected offices. Servicesto be provided shall include a telephone, water sanitary and electrical supply and drainage. The offices shall be supplied with furniture and equipment that shall include: 4 No. desks with chairs; 1 No. large table with sufficient number of chairs; drawing table along the full length of one side with plan drawersand drawing stools: 4 No. waste paper baskets: sufficient number of pinboards: and any additional furniture and fittings as may reasonably be required during the Contract period. The Contractor shall provide the Architect and site staff with computer sets or laptops, printers and telephones all that are necessary for project use. The office furniture and equipment shall all be to the approval of the Engineer. The Contractor shall also provide all labor, equipment and consumable stores equipment throughout the currency of the contract.	
2	[OPTIONAL] Contractor shall provide a house for Engineers site agent, which shall be one bedroomed temporary house with a sitting room, toilet,bathroom and a kitchen complete with electrical and sanitary installations and provide maintenance and paying of bills of water and electricity up toand including end of the contract period.	
3	Provide a signboard not less than_____square meters in sizeof a design type, and with lettering and coloring and in a position approved by the Engineer. The signboard shall be for the display of the Main Contractor's name and the names of all his Sub-Contractors, with the Procuring Entity's name painted thereon. All Consultants names be printed in letters not exceeding 50 mm high. No other signboard or advertising shall be allowed. The signboard shall be fully maintained during the Contract Period and shall be pulled down and removed at the end of the contract.	
4	Add others (if any)	
5		
6		
	TOTAL CARRIED TO GRAND SUMMARY	

BILL NO. 2: WORK ITEMS

(organized appropriately into work sections, such as foundations, walls/structure, finishes, doors and windows,mechanical installations. etc.

Bill No 2 - *(Name of Section e.g. Foundations).*

Item no.	*Description*	*Unit*	*Quantity*	*Rate*	*Amount*
Total for Bill No. 2 (carried forward to Summary, p._____)					_____

Bill No. 3: Schedule of Daywork Rates - Labor

Item no.	Description	Unit	Nominal quantity	Rate	Amount
	Subtotal				
	Allow_____percent[a] of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above.				
	Total for Daywork (carried forward to Daywork Summary, p.____)				

a. To be entered by the Tenderer.

Bill No. 4: Schedule of Daywork Rates - Materials

Item no.	Description	Unit	Nominal quantity	Rate	Extended amount
	Subtotal				
	Allow_____percent a. of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 4 (b) above.				
	Total for Daywork: Materials (carried forward to Daywork Summary, p. _____)				

a. To be entered by the Tenderer.

Bill No. 5: Schedule of Daywork Rates - Contractor's Equipment

Item no.	*Description*	*Nominal quantity (hours)*	*Basic hourly rental rate*	*Extended amount*
	Allow percent [a] of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 5 above.			
Total for Daywork: Contractor's Equipment (carried forward to Daywork Summary, p.)				

a. To be entered by the Tenderer.

Bill No. 6: Daywork Summary

	Amount[a]	*% Foreign*	*Currency*
1. Total for Daywork: Labor			
2. Total for Daywork: Materials			
3. Total for Daywork: Contractor's Equipment			
Total for Daywork (Provisional Sum) (carried forward to Summary of Bills of Quantities, p.__)			

Bill No. 7: Provisional Sums

Bill no.	*Item no.*	*Description*	*Amount*
1			
2			
3			
4			
etc.			
Total for Specified Provisional Sums (carried forward to Grand Summary			

GRAND SUMMARY

SUMMARY ITEMS	*Page*	*Amount*
Bill No. 1: Preliminary Items		
Bill No. 2: Work Items		
Bill No 3: Daywork Summary		
Bill No 4: Provisional Sums		

Subtotal of Bills No 1-4		
Allow for any Discounts [i]		
TOTAL TENDER PRICE Carried forward to Form of Tender		

If a percentage used, it should be indicated on which Bill No. items but on Bill No.4 – Provisional Sums

BILL OF QUANTITIES FOR THE PARKING SILO

SCHEDULE 1

SECTION NO. 2

PARTICULAR PRELIMINARIES

ITEM	DESCRIPTION	K.SHS
	BILL NO. 1	
	PARTICULAR PRELIMINARIES	
	EMPLOYER	
A	The "Employer" is Kenya Electricity Generating Company PLC (KenGen), P.O. Box 47936 - 00100 Nairobi Kenya. The term "Employer* and "Kengen" wherever used in the contract document shall be synonymous	
	PROJECT MANAGER	
B	The term "PM" wherever used in these Bills *of* Quantities shall be deemed to mean M/s Dama Services Ltd as defined in Condition 1 of the Conditions of Contract or such person or persons as may be duly authorised to represent him on behalf of the Kenya Electricity Generating Company.	
	ARCHITECT	
C	The term "Architect" shall be deemed to mean M/s Dama Services Ltd as defined above whose address unless otherwise notified is , P.O Box 9656 - 00100, NAIROBI.	
	QUANTITY SURVEYOR	
D	The term "Quantity Surveyor" shall be deemed to mean M/s Komos Associates Ltd P.O Box 69721 - 00400, NAIROBI.	
	ELECTRICAL ENGINEER	
E	The term "Electrical Engineer" shall be deemed to mean M/s Norkun Intakes Ltd, P.O Box 605 - 00100, NAIROBI.	
	MECHANICAL ENGINEER	
F	The term "Mechanical Engineer" shall be deemed to mean M/s Norkun Intakes Ltd, P.O Box 3605 - 00100, NAIROBI.	
	STRUCTURAL ENGINEER	
G	The term "Structural Engineer" shall be deemed to mean M/s Inticom Ltd, P.O Box 14105 - 00100, NAIROBI.	
	PRICING ITEMS OF PRELIMINARIES	
H	Prices SHALL BE INSERTED against items of "preliminaries" in the tenderer's priced Bills of Quantities. The contractor is advised to read and understand all preliminary items.	
	DESCRIPTION OF THE WORKS	
J	The works to be carried out under this contract comprises Proposed Office Fit Out Works and Associated Electrical and Mechanical Works.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	SCOPE OF WORKS	
A	The works to be carried out under this contract comprise of: Office Fit Out Works comprising of converting the sixth floor of KENGEN PLAZA II Parking Silo into offices by Glass, Gypsum, Masonry walls and Aluminium Partitioning, Floor, and Ceiling Finishing. The works shall also include fitting Aluminium windows and doors together with associated Electrical and Mechanical Works to be carried by nominated / domestic Subcontractors. The Tenderer is to note that the works under this contract are for Renovations and alterations to an existing structure and thus ALL works shall be subject to remeasurments during construction and after completion.	
B	**FLOOR AREA**	
	i Upper Level Office 630 SM ii Lower Level Office 818 SM **Total Floor Area 1,448 SM**	
	Note All floor areas are given without warranty and is for guidance ONLY. No liability shall be entertained from using them.	
	MEASUREMENTS	
C	In the event of any discrepancies arising between the Bills of Quantities and the Architect drawings, the Architect drawings shall generally take precedence. However, such discrepancies between any contract documents shall immediately be referred to the PROJECT MANAGER in accordance with Clause 22 of the Conditions of Contract The discrepancies shall then be treated as a variation and be dealt with in accordance with Clause 22 of the said Conditions.	
D	In the event of any discrepancies arising between the Bills of Quantities and the actual works, the site measurements shall generally take precedence. However, such discrepancies between any contract documents shall immediately be referred to the PROJECT MANAGER in accordance with Clause 22 of the Conditions of Contract The discrepancies shall then be treated as a variation and be dealt with in accordance with Clause 22 of the said Conditions.	
	LOCATION OF SITE	
E	The site is located in KENGEN PENSION PLAZA, II along Kolobot Road Nairobi, Parklands area approximately Four (4) Km from Nairobi CBD. The Contractor is advised to visit the site, to familiarize with the location of the project. No claims arising from the Contractor's failure to do so will be entertained.	
	SIGNING OF THE TENDER DOCUMENTS	
F	The bidder shall append his / her signature and / or company's rubberstamp on each and every page of tender document.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	DEMOLITIONS AND ALTERATIONS	
A	The Contractor is to allow for all temporary protection required during the works including ordinary and special dust screens, hoardings, barriers, warning signs, etc. as directed by the Project Manager and as necessary for the adequate propping and protection of existing property, finishes, workmen employed on the site, employer's agents and the public. Any damage or loss incurred due to the insufficiency of such protection must be made good by the Contractor. All protective devices are to be removed on completion of the works and any necessary making good consequent upon this is to be executed to the satisfaction of the Project Manager	
B	The works shall be propped, strutted and supported as necessary before any alteration or demolition work commences. Prices shall include for all cleaning and preparatory work to structure and finishes and for making good to all finishes on completion whether or not specifically described.	
C	Unless described as set aside for re-use all arising debris and surplus materials shall be carefully removed from building and carted away from site.	
D	The Contractor shall be entirely responsible for any breakage or damage which may occur to materials required for re-use during their removal unless it is certified by the Project Manager that such damage or breakage was inevitable as a result of the condition of the item concerned	
	CLEARING AWAY	
E	The Contractor shall remove all temporary works, rubbish, debris and surplus materials from the site as they accumulate and upon completion of the works, remove and clear away all plant, equipment, rubbish, unused materials and stains and leave in a clean and tidy state to the reasonable satisfaction of the Project Manager.	
F	The whole of the works shall be delivered up clean, complete and in perfect condition in every respect to the satisfaction of the Project Manager.	
	CLAIMS	
G	It shall be a condition of this contract that upon it becoming reasonably apparent to the Contractor that he has incurred losses and / or expenses due to any of dire contract conditions, or by any other reason whatsoever, he shall present such a claim or intent to claim notice to the PROJECT MANAGER within the contract period. No claim shall be entertained upon the expiry of the said contact period.	
	PAYMENTS	
H	The tenderer's attention is drawn to the fact that the CLIENT DOES NOT MAKE ADVANCE PAYMENTS but pays for work done and materials delivered to site: all in accordance with Clause 23 of the Conditions of Contract Agreement. In order to facilitate this, a list of the general component elements for the works is given at the summary page of these specifications and the tenderer is requested to break down his tender sum commensurate to the said elements	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	PREVENTION OF ACCIDENT, DAMAGE OR LOSS	
A	The Contractor is notified that these works are to be carried out on a restricted site where the client is going on with other normal activities. The Contractor is thus instructed to take reasonable care in the execution of the works as to prevent accidents, damage or loss and disruption of activities being carried out by the Client The Contractor shall allow in his rates any expense he deemed necessary by taking such care within the site.	
	WORKING CONDITIONS	
B	The Contractor shall allow in his rates for any interference that he may encounter in the course of the works for the Client may in some cases ask the Contractor not to proceed with the works until some activities within the site are completed, as the facility will be operating as usual during the course of the contract	
	SIGNBOARD	
C	Allow for providing, erecting, maintaining throughout the course of the Contract and afterwards clearing away a signboard as designed, specified and approved by the Project Manager.	
	LABOUR CAMPS	
D	The Contractor shall not be allowed to house labour on site. Allow for transporting workers to and from the site during the tenure of the contract	
	MATERIALS FROM DEMOLITIONS	
E	Any materials arising from demolitions and not re-used shall become the property of the client. The Contractor shall allow in his rates the cost of disposing the demolished materials as directed.	
	PRICING RATES	
F	The tenderer shall include for all costs in executing the whole of the works, including transport, replacing damaged items, fixing, all to comply with the said Conditions of Contract.	
	URGENCY OF THE WORKS	
G	The Contractor is notified that these " works are urgent" and should be completed within the period stated in these Particular Preliminaries.	
H	The Contractor shall allow in his rates for any costs he/ she deems that he/she may incur by having to complete these works within the stipulated contract period.	
	PAYMENT FOR MATERIALS ON SITE	
J	All materials for incorporation in the works must be stored on site before payment is effected, unless specifically exempted by the Project Manager. This is to include materials of the Contractor, nominated sub-Contractors and nominated suppliers.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	NEMA REGISTRATION	
A	The Contractor shall be responsible for complying with Nema requirements and shall allow for all costs arising or resulting therefrom. No claim of extension of time shall be allowed as a result of complains to NEMA requirements. Copy of NEMA license may be inspected in the Project Managers office by prior notice. These requirements are as annexed and the Contractors duties and responsibilities outlined below	
B	***Duties of the Contractor*** i. Ensure effective implementation of projects impacts mitigation measures ii. Acquire the necessary permits and licenses (workplace registration permit) iii. Mobilize and delegate an in house Environment and social expert with a key responsibility to; • *Evaluate and review the ESIA prepared for the project* • *Customize the project ESMP and generate a contractor specific ESMP* • *Prepare monthly monitoring report* iv. Prepare and maintain an approved time and progress work-chart, showing clearly the period allowed for each section of the work. v. Comply with all regulations and by-laws of the county authority including serving of notices and paying of the fees. vi. During the night, public holidays and any other time when no work is being carried out on-site, the contractor shall accommodate only security personnel and never should a labor camp be allowed onsite. vii. The contractor shall make good at his own expense any damage he may cause to the public and private roads, drainages and pavements in the course of carrying out the office construction works. viii. The proponent shall define the area of the site, which may be occupied by the contractor for use as storage of the construction material on the site ix. The contractor shall make his own arrangements for sanitary conveniences for his workmen. Any arrangements so made shall be in conformity with the public health requirements for such facilities and the contractor shall be solely liable for any infringement of the requirements. x. The contractor shall be responsible for all the actions of the subcontractor in the first instance. xi. The contractor shall take all possible precautions to prevent nuisance, inconvenience or injury to the neighboring properties and to the general public, and shall use proper precaution to ensure the safety of University staff and students xii. All work operations which may generate noise, dust, vibrations, or any other discomfort to the workers and/or guests of the client and the neighbors must be undertaken with care, with all necessary safety precautions taken.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	xiii. The contractor shall take all effort to muffle the noises from his tools, equipment and workmen to not more than 80dBA. xiv. The contractor shall upon completion of working, remove and clear away all plant, rubbish and unused materials and shall leave the whole site in a clean and tidy state to the satisfaction of the Proponent. He shall also remove from the site all rubbish and dirt as it is produced to maintain the tidiness of the premises and its immediate environs. xv. The standard of workmanship shall not be inferior to the Kenya Bureau of Standards and/or National Construction Authority. No materials for use in the permanent incorporation into the works shall be used for any temporary works or purpose other than that for which it is provided. Similarly, no material for temporary support may be used for permanent incorporation into the works. xvi. The contractor shall maintain good working relationship with the community and implement the stakeholder engagement plan and the grievance redress mechanism for the project.	
	OTHER STATUTORY OBLIGATIONS, NOTICES, FEES AND CHARGES	
A	Not withstanding any other statutory obligations, notices, fees and charges not listed above, the contractor shall allow in his tender for all such costs incurred in complying with all statutory requirements and payment of all leviers currently in force and affecting the construction industry.	
	CONSTRUCTION LEVY	
B	The Contractor's attention is drawn to The National Construction Authority Act, Number 41 of 2011, which requires payment by the developer of Construction Levy of 0.5% on all Contracts of more than KShs 5,000,000/- in value and the contractor must include for all costs arising or resulting therefrom.	
	EXISTING SERVICES	
C	Prior to the commencement of any work, the Contractor is to ascertain from the relevant authority the exact position, depth and level of all existing services in the area and he/she shall make whatever provisions may be required by the authorities concerned for the support, maintenance and protection of such services.	
	CONTRACT COMPLETION PERIOD	
D	The contract completion period is 90 weeks The 'PROJECT MANAGER' shall strictly monitor the Contractors progress in relation to the progress chart and should it be found necessary the 'PROJECT MANAGER' shall inform the Contractor in writing that his actual performance on site is not satisfactory .In all such cases the Contractor shall accelerate his rate of performance production and progress by all means such as additional labour, plant, e.tc and working overtime all at his cost	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	PERFORMANCE BOND	
A	A bond of 7.5% of the contract sum will be required in accordance with clause ITT 48.0 on award of contract of the Instructions to Tenderer's. No payment on account for the works executed will be made to the contractor until he has submitted the Performance Bond to the Project Manager duly signed, sealed and stamped from an approved Bank.	
	TENDER DOCUMENTS	
B	Tender documents are as listed in Clause 11.1 of the Instruction to Tenderer's	
	DELIVERY OF TENDER	
C	Tenders and all documents in connection therewith, as specified above must be delivered in the format as specified in the letter accompanying these documents or as indicated in the advertisement. Tenders submitted electronically shall follow the electronic Tender submission procedures specified in the TDS.	
	TENDER SECURITY	
D	A Tender Security of 2% of the contract sum will be required in accordance with clause ITT 48.0 on award of contract of the Instructions to Tenderer's. No payment on account for the works executed will be made to the contractor until he has submitted the Performance Bond to the Project Manager duly signed, sealed and stamped from an approved Bank.	
E	Tenders will be opened at the time specified in the letter accompanying these Tender Documents or as indicated in the advertisement. Tenders delivered/received later than the above time will not be opened.	
	VALUE ADDED TAX	
F	The Contractor's attention is drawn to the Legal Notice in the Finance Act part 3 Section 21(b) operative from 1st September, 1993 which requires payment of VAT on all contracts. The Contractor should therefore include allowance in his rates and prices for prices for VAT and any other Government taxes currently in force.	
G	The tenderer is advised that in accordance with the Finance Act 2014 withholding VAT tax was reintroduced at a rate of 6% with effect from 19th September, 2014	
	FORM OF CONTRACT	
H	The Form of Contract shall be as stipulated in the Republic of Kenya's Standard Tender Document for Procurement of Works (Building Works and associated Civil works (April 2022 Edition) and its regulations included herein The Conditions of Contract are also included herein Particulars of insertions to be made in the Appendix to the Contract Agreement will be found in the Particular Preliminaries part of these Bills of Quantities	
	POLICE REGULATIONS	
J	The Contractor is to allow for complying with all instructions and regulations of the police Authorities.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	SAFETY	
A	The Contractor shall comply at all times with the requirements of the Factory Act (Cap 514), Building Construction Rules, Supplement 18, Legal Notice No.40 dated April, 1984 and ensure that the safety of his workpeople and authorised visitors to the Site is protected at all times. In particular there shall be proper provision of planked footways and guard-rails to scaffolding, etc., protection against falling materials and tools and the Site shall be tidy and clear of dangerous rubbish.	
B	The Contractor shall appoint a safety officer as required by the Factory Act and notify the Factory Inspector of his name, the safety Officer shall be on Site at all times and all directions given by the Architect to the Safety Officer shall be deemed to be Architects Instructions, and shall be complied with promptly without additional cost to the contract	
C	The Architect shall be empowered to suspend work on the Site should he consider these conditions are not being observed, and no claim arising from such suspension will be allowed.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
A	Liability Against Injury to Persons and Property Clause No. 11	
B	Insurance Against Injury to Persons and Property Clause No. 12	
	i) These risks shall be covered by a Contractor's third party policy with an indemnity of not less than KShs. 5,000,000/= for any one accident or series of accidents arising from the same event unlimited in aggregate.	
	ii) Insurance under Clause 12.3, if required, shall be executed to cover risks upon the express instructions of the Architect.	
C	Insurance of the Works (Contractor's Liability) Clause No. 13	
D	The Contractor shall effect the necessary insurances.	
E	Insurance of the Works (Employer's Liability) Clause No. 14	
	This clause to be deleted.	
F	Insurance of the Works (Works of Alterations) Clause No. 15	
G	Office of the Architect	
	The Contractor shall be required to provide an office for the Architect.	
H	Foreman's Office and Sheds	
	The Contractor shall be required to provide his own offices and shed	
J	Compliance with NCA	
	The Contractor's attention is drawn to the NCA act No. 41 of 2011 and subsequent amendments, and the need for compliance with all conditions.	
	Carried to Collection	

ITEM	DESCRIPTION	K.SHS
A	**PARTICULARS OF INSERTIONS TO BE MADE IN APPENDIX TO**	
	CONTRACT AGREEMENT	
	The following are the insertions to be made in the appendix to the Contract Agreement -	
i	Period of Final Measurement 3 Months From Practical completion	
ii	Defects Liability Period 6 Months from Practical completion	
iii	Date for Possession To be agreed with the Project Manager	
iv	Date for Completion 90 Weeks from date of Possession	
v	Liquidated and Ascertained At the rate of Kshs.. 0.005% per day or part thereof:	
vi	Prime cost sums for which ..... The Contractor desires to tender	
vii	Period of Interim Certificates Monthly	
viii	Period of Honoring Certificates 30 days	
ix	Percentage of Certified Value Retained 10%	
x	Limit of Retention Fund 10%	
xi	Tender Security 2.0%	
xii	Performance Security 5%	
B	**Other Preliminary Items**	
	The Contractors must include any preliminary item/s he deems is not covered by the above or elsewhere :	
i		
ii		
iii		
iv		
v		
vi		
	Carried to Collection	

ITEM	DESCRIPTION	K.SHS
	COLLECTION	
1	Brought forward from page PP/1	
2	Brought forward from page PP/2	
3	Brought forward from page PP/3	
4	Brought forward from page PP/4	
5	Brought forward from page PP/5	
6	Brought forward from page PP/6	
7	Brought forward from page PP/7	
8	Brought forward from page PP/8	
9	Brought forward from page PP/9	
10	Brought forward from page PP/10	
	TOTAL FOR PARTICULAR PRELIMINARIES CARRIED TO MAIN SUMMARY	

SCHEDULE 2

SECTION NO. 3

GENERAL PRELIMINARIES

ITEM	DESCRIPTION	K.SHS
	BILL NO. 2	
	GENERAL PRELIMINARIES	
	PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES	
	Prices will be inserted against items of Preliminaries in the Contractor's priced	
	Bills of Quantities and Specification.	
A	The Contractor shall be deemed to have included in his prices or rates for the various items in the Bills of Quantities or Specification for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.	
	ABBREVIATIONS	
B	Throughout these Bills, units of measurement and terms are abbreviated and shall be interpreted as follows:-	
	CM . Shall mean cubic metre	
	S.M. Shall mean square metre	
	L.M. Shall mean linear metre	
	MM Shall mean Millimetre	
	Kg. Shall mean Kilogramme	
	No. Shall mean Number	
	Prs. Shall mean Pairs	
	B-S. Shall mean the British Standard Specification Published by the British Standards Institution, 2 Park Street, London W.I., England.	
	Ditto Shall mean the whole of the preceding description except as qualified in the description in which it occurs.	
	m.s. Shall mean measured separately.	
	a.b.d. Shall mean as before described.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	EXCEPTION TO THE STANDARD METHOD OF MEASUREMENT	
A	***Attendance;*** Clause B19(a) of the Standard Method 6f Measurement is deleted and the following clause is substituted:- Attendance on nominated Sub-Contractors shall be given as an item in each case shall be deemed to include: allowing use of standing scaffolding, mess rooms, sanitary accommodation and welfare facilities; provision of special scaffolding where necessary; providing space for office accommodation and for storage of plant and materials; providing light and water for their work: clearing away rubbish; unloading checking and hoisting: providing electric power and removing and replacing duct covers, pipe casings and the like necessary for the execution and testing of Sub- Contractors' work and being responsible for the accuracy of the same. ***Fix Only:-*** "Fix Only" shall mean take delivery at nearest railway station (Unless otherwise stated),pay all demurrage charges, load and transport to site where necessary, unload, store, unpack, assemble as necessary, distribute to position, hoist and fix only.	
	FORM OF CONTRACT	
B	The Form of Contract shall be as stipulated in the Republic of Kenya's Standard Tender Document for Procurement of Building Works and associated Civil Works (2022 Edition) included herein The Conditions of Contract are also included herein ***Conditions of Contract*** These are numbered from 1 to 20 as set out in pages ***STD/99-STD/154*** of these tender documents. Particulars of insertions to be made in the Appendix to the Contract Agreement will be found in the Particular Preliminaries part of these Bills of Quantities page PP/10	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	PLANT, TOOLS AND VEHICLES	
A	Allow for providing all steel scaffolding, plant, tools and vehicles required for the works except in so far as may be stated otherwise herein and except for such items specifically and only required for the use of nominated Sub-Contractors as described herein. No timber shall be used for scaffolding. Timber used for formwork or temporary works of any kind shall NOT BE USED afterwards in the permanent work. Scaffolding shall include all necessary and approved dust screens to ensure no falling debris shall cause harm or injury to third parties	
	TRANSPORT.	
B	Allow for transport of workmen, materials, etc., to and from the site at such hours and by such routesas may be permitted by the competent authorities.	
	MATERIALS AND WORKMANSHIP.	
C	All materials and workmanship used in the execution of the work shall be of the best quality and description unless otherwise stated. The Contractor shall order all materials to be obtained from overseas immediately after the Contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that they are onsite when required for use in the works. The Bills of Quantities shall not be used for the purpose of ordering materials.	
	SIGN FOR MATERIALS SUPPLIED.	
D	The Contractor will be required to sign a receipt for all articles and materials supplied by the PROJECT MANAGER at the time of taking deliver thereof, as having received them in good order and condition, and will thereafter be responsible for any loss or damage and for replacements of any such loss or damage with articles and/or materials which will be supplied by the PROJECT MANAGER at the current market prices including Customs Duty and V.A.T., all at the Contractor's own cost and expense, to the satisfaction of the PROJECT MANAGER	
	STORAGE OF MATERIALS	
E	The Contractor shall provide at his own risk and cost where directed on the site weather proof lock-up sheds and make good damaged or disturbed surfaces upon completion to the satisfaction of the PROJECT MANAGER Nominated Sub-Contractors are to be made liable for the cost of any storage accommodation provided especially for their use.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	SAMPLES	
A	The Contractor shall furnish at his own cost any samples of materials or workmanship including concrete test cubes required for the works that may be called for by the PROJECT MANAGER for his approval until such samples are approved by the PROJECT MANAGER and the PROJECT MANAGER, may reject any materials or workmanship not in his opinion to be up to approved samples. The PROJECT MANAGER shall arrange for the testing of such materials as he may at his discretion deem desirable, but the testing shall be made at the expense of the Contractor and not at the expense of the PROJECT MANAGER. The Contractor shall pay for the testing in accordance with the current scale of testing charges laid down by the Ministry of Lands, Housing and Urban Development (State Department of Public Works). The procedure for submitting samples of materials for testing and the method of marking for identification shall be as laid down by the PROJECT MANAGER The Contractor shall allow in his tender for such samples and tests except those in connection with nominated sub-contractors' work.	
	GOVERNMENT ACTS REGARDING WORK, PEOPLE ETC.	
B	Allow for complying with all Government Acts, Orders and Regulations in connection with the employment of Labour and other matters related to the execution of the works. In particular the Contractor's attention is drawn to the provisions of the Factory Act 1950 and iris tender must include for all costs arising or resulting from compliance with any Act, Order or Regulation relating to Insurances, pensions and holidays for workpeople or so the safety, health and welfare of the workpeople. The Contractor must make himself fully acquainted with current Acts including Police Regulations regarding the movement, housing, security and control of and Regulations, labour, labour camps, passes for transport, etc. It is most important that the Contractor, before tendering, shall obtain from the relevant Authority the fullest information regarding all such regulations and/or restrictions which may affect the organisation of the works, supply and control of labour, etc., and allow accordingly in his tender. No claim in respect of want of knowledge in this connection will be entertained.	
	SECURITY OF WORKS ETC.	
C	The Contractor shall be entirely responsible for the security of all the works stores, materials, plant, personnel, etc., both his own and sub-contractors' and must provide all necessary watching, lighting and other precautions as necessary to ensure security against theft, loss or damage and the protection of the public.	
	PUBLIC AND PRIVATE ROADS.	
D	Maintain as required throughout the execution of the works and make good any damage to public or private roads arising from or consequent upon the execution of the works to the satisfaction of the local and other competent authority and the PROJECT MANAGER	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	EXISTING PROPERTY.	
A	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 and shall make good all such damage arising from the execution of this contract at his own expense to the satisfaction of the PROJECT MANAGER	
	VISIT SITE AND EXAMINE DRAWINGS.	
B	The Contractor is recommended to examine the drawings and visit the site the location of which is described in the Particular Preliminaries hereof. He shall be deemed to have acquainted himself therewith as to its nature, position, means of access or any other matter which, may affect his tender. No claim arising from his failure to comply with this recommendation will be considered.	
	ACCESS TO SITE AND TEMPORARY ROADS.	
C	Means of access to the Site shall be agreed with the PROJECT MANAGER prior to commencement of the work and Contractor must allow for building any necessary temporary access roads (approximately 40 metres long) for the transport of the 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 to the Site. Upon completion of the works, the Contractor shall remove such temporary access roads; temporary culverts, bridges, etc., and make good and reinstate all works and surfaces disturbed to the satisfaction of the PROJECT MANAGER	
	AREA TO BE OCCUPIED BY THE CONTRACTOR	
D	The area of the site which may be occupied by the Contractor for use of storage and for the purpose of erecting workshops, etc., shall be defined on site by the PROJECT MANAGER	
	OFFICE ETC. FOR THE PROJECT MANAGER	
E	The Contractor shall provide, erect and maintain where directed on site a properly ventilated lockable office for the consultants, having a minimum floor area of 40 Square Metres complete with furniture (Tables, chairs etc.). Provision shall be made for artificial lighting and cleaning facilities for the duration of the works. Upon completion the Contractor shall dismantle and clear away the office. He shall also provide a strong metal trunk complete with strong hasp and staple fastening and two keys. He shall provide, erect and maintain a lock-up type water or bucket closet for the sole use of the PROJECT MANAGER including making temporary connections to the drain where applicable to the satisfaction of Government and Medical Officer of Health and shall provide services of cleaner and pay all conservancy charges and keep both office and closet in a clean and sanitary condition from commencement to the completion of the works and dismantle and make good disturbed surfaces. The office and closet shall be completed before the Contractor is permitted to commence the works. The Contractor shall make available on the Site as and when required by the "PROJECT MANAGER" a modern and accurate level together with levelling staff, ranging rods and 50 metre metallic or linen tape. The site office shall be as per the Architects' drawings	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	WATER AND ELECTRICITY SUPPLY FOR THE WORKS	
A	The Contractor shall provide at his own risk and cost all necessary water, electric light and power required for use in the works. The Contractor must make his own arrangements for connection to the nearest suitable water main and for metering the water used. He must also provide temporary tanks and meters as required at his own cost and clear away when no longer required and make good on completion to the entire satisfaction of the PROJECT MANAGER. The Contractor shall pay allcharges in connection herewith. No guarantee is given or implied that sufficient water will be availablefrom mains and the Contractor must make his own arrangements for augmenting this supply at his owncost. Nominated Subcontractors are to be made liable for the cost of any water or electric current used and for any installation provided especially for their own use. The Contractor shall allow for an approved Power Surge Protection when connecting electricity from the Client's mains supply. He shall ensure the same is well maintained during the entire period of the contract.	
	SANITATION OF THE WORKS	
B	The Sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the Project Manager and/or Local Authorities or Labour Department Sanitation facilities shall be clearly marked for Male & Female gender. The contractor shall allow for all consumables e.g. clean running water accessible to users at all times, tissue papers, soaps and a regular cleaner.	
	SUPERVISION AND WORKING HOURS	
C	The works shall be executed under the direction and to the entire satisfaction in all respects of the PROJECT MANAGER who shall at all times during normal working hours have access to the works and to the yards and workshops of the Contractor and sub-Contractors or other places where work is being prepared for the contract All works shall be carried out in a manner so as not to interrupt the day to day operations for the rest of the building. Noise shall be reduced to bare minimum and extra working hours shall be arranged with the Project Manager where noisy works are to be carried out. However NO CLAIM shall be entertained due to such arrangements.	
	PROVISIONAL SUMS.	
D	The term “Provisional Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7(i) of the Standard Method of Measurement mentioned in Condition No. 16 of the conditions of Contract Such sums are net and no addition shall be made to them for profit	
	PRIME COST (OR P.C) SUMS.	
E	The term “Prime Cost Sum" or "P.C. Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7 (ii) of the Standard I Method of Measurement mentioned in Condition No. 16 of the conditions of Contract Persons or firms nominated by the CLIENT to execute work or to provide and fix materials or goods as stated in Condition No. 34.1 of the Conditions of Contract are described herein as Nominated Sub-Contractors. Persons or firms so nominated to supply goods or materials are described herein as Nominated Suppliers.	
	PROTECTIVE CLOTHING	
F	The Contractor shall provide all protective or any other special clothing or equipment for his employees that may be necessary .This shall include, inter-alia, safety helmets, gloves, goggles, earmuffs, gumboots, overalls, etc., according to the type of work. The Contractor shall ensure that safety helmets are worn by all staff and visitors at all times.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	PROGRESS CHART.	
A	The Contractor shall provide within two weeks of Possession of Site and in agreement with the PROJECT MANAGER a Progress Chart for the whole of the works including the works of Nominated Sub-Contractors; one copy to be handed to the PROJECT MANAGER and a further copy to be retained on Site. Progress to be recorded and chart to be amended as necessary as the work proceeds.	
	ADJUSTMENT OF P.C. SUMS.	
B	In the final account all P.C. Sums shall be deducted and the amount properly expended upon the PROJECT MANAGER'S order in respect of each of them added to the Contract sum. The Contractor shall produce to the PROJECT MANAGER such quotations, invoices or bills, properly receipted, as may be necessary to show the actual details of the sums paid by the Contractor. Items of profit upon P.C. Sums shall be adjusted in the final account pro-rata to the amount paid. Items of "attendance" (as previously described) following P.C. Sums shall be adjusted pro-rata to the physical extent of the work executed (not pro-rata to the amount paid) and this shall apply even though the Contractor's priced Bill shows a percentage in the rate column in respect of them. Should the Contractor be permitted to tender and his tender be accepted of any work for which a P.C. Sum is included in these Bill of Quantities profit and attendance will be allowed at the same rate as it would be if the work were executed by a Nominated Subcontractor.	
	ADJUSTMENT OF PROVISIONAL SUMS.	
A	In the final account all Provisional Sums shall be deducted and the value of the work properly executed in respect of them upon the PROJECT MANAGER'S order added to the Contract Sum. Such work shall be valued as described for Variations in Conditions No. 18 of the Conditions of Contract, but should any part of the I work be executed by a Nominated Sub-Contractor, the value of such work or articles for the work to be supplied by a Nominated Supplier, the value of such j work or articles shall be treated as a P.C. Sum and profit and attendance comparable to that contained in the priced Bills of Quantities for similar items added.	
	NOMINATED SUB-CONTRACTORS	
B	When any work is to be executed by nominated sub-contract under clause 34.1 of the Conditions of Contract the Main Contractor shall be responsible for providing for such Sub-Contractors any or all of the facilities described in these Preliminaries. The Contractor should price for these with the nominated Subcontract Contractor's work concerned in the P.C. Sums under the description "add for Attendance".	
	DIRECT CONTRACTS	
C	Notwithstanding the foregoing conditions, the Government reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C. Sum in the Bills of Quantities and to pay for the same direct. In any such instances, profit relative to the P.C. Sum the priced Bills of Quantities will be adjusted as described for P.C. Sums and allowed.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	ATTENDANCE UPON OTHER TRADESMEN, ETC.	
A	The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this Contract every facility for carrying out their work and also for use of his ordinary scaffolding. The Contractor, however, shall not be required to erect any special scaffolding for them. The Contractor shall perform such cutting away for and making good after the work of such tradesmen or persons as may be ordered by the PROJECT MANAGER and the work will be measured and paid for to the extent executed at rates provided in these Bills.	
	INSURANCE	
B	The Contractor shall insure as required in Conditions No 30 of the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the PROJECT MANAGER either by production of an Insurance Policy or and Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in all respects. Thereafter the PROJECT MANAGER shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce the receipted premium renewals for the PROJECT MANAGER'S inspection.	
	PROVISIONAL WORK	
C	All work described as "Provisional" in these Bills of Quantities is subject to remeasurement in order to ascertain the actual quantity executed for which payment will be made. All "Provisional" and other work liable to adjustment under this Contract shall be left uncovered for a reasonable time to allow all measurements needed for such adjustment to be taken by the PROJECT MANAGER. Immediately the work is ready for measuring, the Contractor shall give notice to the PROJECT MANAGER. If the Contractor makes default in these respects he shall if the PROJECT MANAGER so directs uncover the work to enable all measurements to be taken and afterwards reinstate at his own expense.	
	ALTERATIONS TO BILLS, PRICING, ETC.	
D	Any unauthorized alteration or qualification made to the text of the Bills of Quantities may cause the Tender to be disqualified and will in any case be ignored. The Contractor shall be deemed to have made allowance in his prices generally to cover any items against which no price has been inserted in the priced Bills of Quantities. All items of measured work shall be priced in detail and the Tenders Sums to cover trades or groups of work must be broken down to show the price of containing Lump each item before they will be accepted.	
	BLASTING OPERATIONS	
E	Blasting will only be allowed with the express permission of the PROJECT MANAGER in writing. 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 PROJECT MANAGER governing the use and storage of explosives.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	MATERIALS ARISING FROM EXCAVATIONS	
A	Materials of any kind obtained from the excavations shall be the property of the Government Unless the PROJECT MANAGER directs otherwise such materials shall be dealt with as provided in the Contract Such materials shall only be used in the works, in substitution of materials which the Contractor would otherwise have had to supply with the written permission of the PROJECT MANAGER Should such permission be given, the Contractor shall make due allowance for the value of the materials so used at a price to be agreed.	
	PROTECTION OF THE WORKS.	
B	Provide protection of the whole of the works contained in the Bills of Quantities, including casing, casing up, covering or such other means as may be necessary to avoid damage to the satisfaction of the PROJECT MANAGER and remove such protection when no longer required and make good any damage which may nevertheless have been done at completion free of cost to the Government	
	WORKS TO BE DELIVERED UP CLEAN	
C	Clean and flush all gutters, rainwater and waste pipes, manholes and drains, was! (except where such treatment might cause damage) and clean all floors, sanitary fittings, glass inside and outside and any other parts of the works and remove all marks, blemishes, stains and defects from joinery, fittings and decorated surfaces generally, polish door furniture and bright parts of metalwork and leave the whole of the buildings watertight, clean, perfect and fit for occupation to the approval of the PROJECT MANAGER	
	REMOVAL OF RUBBISH ETC.	
D	Removal of rubbish and debris from the buildings and site as it accumulates and at the completion of the woks and remove all plant, scaffolding and unused materials at completion.	
	GENERAL SPECIFICATION.	
E	For the full description of materials and workmanship, method of execution of the work and notes for pricing, the Contractor is referred to the Ministry of Roads and Public Works and Housing General Specification dated 1976 or any subsequent revision thereof which is issued as a separate document, and which shall be allowed in all respects unless it conflicts with the General Preliminaries, Trade Preambles or other items in these Bills of Quantities.	
	TRAINING LEVY	
F	The Contractor's attention is drawn to the legal notice which requires payment by the Contractor of a Training Levy at the rate of 1/4 % of the Contract sum on all contracts of more than Kshs. 1,000,000.00 in value.	
	MATERIALS ON SITE	
G	All materials for incorporation in the works must be stored on or adjacent to the site before payment is effected unless specifically exempted by the PROJECT MANAGER. This includes the materials of the Main Contractor, Nominated Subcontractors and Nominated Suppliers.	
	Carried to collection	

ITEM	DESCRIPTION	K.SHS
	HOARDING	
A	The Contractor shall enclose all the site or part of the works under construction with a hoarding 3000 mm high consisting of iron sheets on 100 x 50 mm timber posts firmly secured at 1800 mm centers with two 75 x 50 mm timber rails. The Contractor is in addition required to take all precautions necessary for the safe custody of the works, materials, plant, public and Employer's property on the site by use of green safety netting or other equal and approved material ***Under no circumstances shall hoarding be used as Scaffolding***	
	CONTRACTOR'S SUPERINTENDENCE/SITE AGENT	
B	The Contractor shall constantly keep on the works a literate English speaking Agent or Representative, competent and experienced in the kind of work involved who shall give his whole experience in thekind of work involved and shall give his whole time to the superintendence of the works. Such Agentor Representative shall receive on behalf of tire Contractor all directions and instructions from the Project Manager and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.	
	ADHERENCE TO COVID-19 PREVENTION PROTOCOLS	
C	The contractor shall at his own cost put in place Covid-19 prevention Protocols and clearly elaborate them in a Covid-19 Action Plan all in compliance with Standards for Management of Construction Sites and Welfare of Workers and the Community by the National Construction Authority as clearly spelt out in the Ministry of Health Guidelines i.e. screening, hand wash points, mask wearing, social distance enforcement, controlled movement, communication principles etc.	
	Carried to Collection	

ITEM	DESCRIPTION	K.SHS
	COLLECTION	
1	Brought Forward From Page GP/1	
2	Brought Forward From Page GP/2	
3	Brought Forward From Page GP/3	
4	Brought Forward From Page GP/4	
5	Brought Forward From Page GP/5	
6	Brought Forward From Page GP/6	
7	Brought Forward From Page GP/7	
8	Brought Forward From Page GP/8	
9	Brought Forward From Page GP/9	
10	Brought Forward From Page GP/10	
	TOTAL FOR GENERAL PRELIMINARIES CARRIED TO BILL MAIN SUMMARY	

SCHEDULE 3

DEMOLITIONS

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT KSHS
	BILL NO. 3 **DEMOLITIONS AND REMOVALS** **(ALL PROVISIONAL)**				
A	The Contractor is to allow for all temporary protection required during the works including ordinary and special dust screens, hoardings, barriers, warning signs etc. as directed by the Architect and as necessary for the protection of the existing structure and finishings, workmen employed upon the site and the public. All protective devices are to be removed on completion of the work and any necessary making good consequent upon this to be executed to the satisfaction of the Architect.		Item		
B	No demolitions shall be commenced without the express instructions of the Architect		Item		
C	All existing work shall be propped, strutted and supported as necessary for the protection and safety of the buildings while carrying out the works. Prices shall include for all necessary preparatory works to structure whether or not specifically described		Item		
D	Unless described as being stored on site, all resulting debris from the demolitions shall be carted away from the site and prices shall include for all costs arising therefrom		Item		
E	Before commencing the demolition of any part of the structure, all Electrical, Plumbing and other Services which come within the area to be demolished shall be disconnected and diverted so that they may be entirely self-contained within any portion of the premises which is to remain		Item		
F	All existing work shall be made good up to new surfaces and cleanedto the satisfaction of the Architect		Item		
G	The Contractor is to allow for all necessary means of access; hoisting etc. to existing floors and roofs at all heights above floor level.		Item		
H	Items described as being stored on site shall be carefully removed from the existing building and stored securely on site until required for re-use. Materials to be re-used shall be cleaned down, made good as necessary and re-fixed in position. The contractor shall be entirely responsible for any breakages or damage which may occur during this process unless it is certified by the Architect that such breakage or damage was inevitable as a result of the conditions of the item concerned, or its method of fixing, in which case the cost of replacement will be borne by the Employer.		Item		
	Carried to Collection				**0.00**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT KSHS
A	All items of cutting openings through walls and floors shall include for temporary propping, supporting the existing walls, floors and roofs, building up jambs, making good wall, floor or roof finish both sides to match existing.		Item		
B	Demolish work sink at 500mm high and salvage for re-usable materials, make good disturbed surfaces, load and cart away debris arising.	1	NO		
C	Demolish 200mm thick stone wall and salvage for re-usable materials, make good disturbed surfaces, load and cart away debris arising.	6	SM		
D	Demolish plywood partition wall and salvage for re-usable materials, make good disturbed surfaces, load and cart away debris arising.	115	SM		
E	Demolish clay vent block wall and salvage for re-usable materials, make good disturbed surfaces, load and cart away debris arising.	5	SM		
F	Demolish iron sheet roof cover only from steel trusses and salvage for re-usable materials, make good disturbed surfaces, load and cart away debris arising.	113	SM		
	Carried to Collection				
	COLLECTION Brought Forward From Page No. 1 Brought Forward From Page No. 2 **TOTAL FOR BILL NO. 2: DEMOLITIONS**				
	Carried to Builders Work Summary				

SCHEDULE 4

OFFICE FIT OUT-BUILDERS WORKS

A. UPPER LEVEL OFFICE

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	BILL NO. 4				
	UPPER LEVEL OFFICE				
	ELEMENT NO. 1				
	WALLING				
	Masonry stone wall				
	Machine cut natural stone walling with a minimum of 7.0 N/mm2 average compressive strength to B.S 5390; bedded and jointed in cement and sand(1:4) mortar; reinforced with 25 x 3 mm hick hoop iron strips at alternate courses to: -				
	Internally				
AB	200 mm thick walls	59	SM		
	100 mm thick walls	46	LM		
	Element No.1; Walling				
	Carried to Summary				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 2				
	PARTITIONS				
	All partitions shall be in accordance with the Interior Designer / Architect Details and Specifications.				
	Dry Wall Partitions				
	Gypsum				
	Dry wall system comprising 75 mm wide studs at 400mm centers as Donn Utrasteel (S.S) or approved equivalent; 12mm each gypsum board to both sides with 50mm thick "Rockwool" insulation within; system to come complete with attendant wall started, recessed head, corner bead and other sections to ensure smooth connection to walling, ceiling and floor surfaces				
AB	100mm thick soundproofed partition wall	320	SM		
	100mm thick partition wall	260	SM		
C	**Decorative Niches**				
	Extra over dry gypsum wall system for creating decorative niches 3100 x 2400 mm all to Interior Designers details	6	NO		
D	**Frameless Clear Glass Partitions**				
	Supply and fix 10 mm thick frameless laminated clear glass partitions wall complete with all necessary stainless steel fittings as per Architect and Interior Designers specifications	294	SM		
E	**Branding (Provisional)**				
	Allow for supply and fix branding film as per Architect and Interior Designers specifications	294	SM		
	Element No.2; Partitions				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 3WINDOWS				
	Supply and fix Powder coated aluminium framed windows, to be fabricated from approved composite extruded powder coated heavy duty hollow or angle sections (minimum 2 mm thick); including glazing with 6 mm thick laminated glass secured to framing using approved rubber glazing strips and aluminiun beading; frames and framing all round mitred at corners including reinforcing cleats, fixing with aluminium screws; plugging and fixing to jambs; sealing with mastic; oiling and adjusting on completion and all necessary ironmongery such as hinges, locking devices such as windows fasteners, stays locks, bolts sliding tracks etc. all as per the Architect's schedule				
ABC	Window size 1950 x 1800 mm high	1	NO		
D	Window size 5200 x 500 mm high	1	NO		
	Window size 700 x 1500 mm high	5	NO		
	Window size 1200 x 700 mm high	4	NO		
	CURTAIN WALLING				
E	Supply, assemble and fix the following weather tight curtain-wall system with horizontal and vertical, visible powder coated aluminium frame; structurally glazed with 8 mm tinted glass panels to framing using approved rubber glazing strips and aluminiun beading; frames and framing all round mitred at corners including reinforcing cleats, fixing with aluminium screws; plugging and fixing to jambs; sealing with mastic; oiling and adjusting on completion, including all necessary accessories such as EPDM gaskets, mild steel powder coated fixing brackets, beading and the like; including openable panels; all as per the Architect's design & details				
	Externally	165	SM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Bull-nosed concrete, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar				
A	150 x 25mm thick concrete window sill	15	LM		
	Wrot Mahogany				
BC	200 x 25 mm thick window boards including bullnosed edges	15	LM		
	25 x 25 mm bearer; plugged, counter sinking and flush pelleting.	15	LM		
D	Window blinds				
	Supply and install vertical window blinds complete with railing and opening mechanism in accordance with Interior Designer's details.	121	SM		
	Painting and Decorations				
EF	Knot, prime, stop, prepare and apply three coats polyurethane clear varnish on woodwork internally				
	200-300mm girth; window boards/Pelmet	15	LM		
	0 - 100mm girth; quadrant	15	LM		
	Carried to Collection				
	COLLECTION Brought Forward From Page No. 3 Brought Forward From Page No. 4 **Element No.3; Windows**				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 4				
	DOORS				
	All doors as per the Architect's schedule				
	FRAMELESS GLASS DOOR				
	10mm thick toughened frameless glass manual openable double door; in 2 No. active leaves each of size 750 x 2100 mm high and 2 No. fixed light 750 x 2100 mm high complete with and including soft closing hinges, locks, catches, automatic door closer, oval satin door stopper, 500 mm long stainless steel pull handles, stainless steel push/pull plate, accessories, opening mechanism and any other necessary ironmongery all as "ASSA ABLOY" or equal and approved including KENGEN logo sticker film				
A	Overall size 3000 x 2100mm high	1	NO		
	10mm thick toughened frameless glass manual openable door; complete with and including soft closing hinges, locks, catches, automatic door closer, oval satin door stopper, stainless steel pull handles, stainless steel push/pull plate, accessories, opening mechanism and any other necessary ironmongery all as "ASSA ABLOY" or equal and approved including frosted sticker film				
BC	Overall size 1800 x 2100mm high	1	NO		
	Overall size 900 x 2400mm high	10	NO		
D	Galvanize Steel solid door with 10mm thick tempered view glass and louvered panel all as per the Architect's design & details				
	Overall size 900 x 2400mm high	2	NO		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Anodized aluminium framed sliding door and glazed with 6mm thick laminated clear glass; to framing using approved rubber glazing strips and aluminiun beading; frames and framing all round mitred at corners including reinforcing cleats, fixing with aluminium screws; plugging and fixing to jambs; sealing with mastic; oiling and adjusting on completion including ironmongery all as "ASSA ABLOY" or equal and approved				
A	Door size 1500 x 2100 mm high	2	NO		
	Semi- solid core mahogany veneered flush doors				
BC	Door size 900 x 2100 mm high	3	NO		
	Door size 800 x 2100 mm high	4	NO		
D	Louvered mahogany panel door				
	Door size 1800 x 2600 mm high	1	NO		
EFG	Wrot Mahogany framed frames and framings				
	200 x 50 mm; 2 No. labours; plugged door frame	41	LM		
	50 x 20mm architraves	41	LM		
	25 x 25mm quadrants	41	LM		
H	Painting and Decorations				
	Prepare and apply three coats oil paint full gloss to Crown Solo or other equal and approved to: -				
J K	General surfaces of metal doors; over 300mm girth internal	9	SM		
	Aluminium primer or other equal and approved wood primer before fixing: -				
	Backs of frame, board, etc. n.e. 100mm	41	LM		
	Ditto 100 - 200mm	41	LM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Prepare and apply three coats polyurethane matt varnish on woodwork internally				
ABC	General surfaces of timber doors over 300mm girth; internal	32	SM		
	Frames; over 200mm but not exceeding 300mm girth; internal	83	LM		
	Frames not exceeding 100mm girth; internal	41	LM		
	Ironmongery				
D	Supply and fix the following to UNION catalogue or other equal and approved to softwood, hardwood or the like fixing with screws				
EF	Five lever mortice lock complete with set lever brass handle furniture	2	NO		
G	Three lever ditto	8	NO		
HJ K	150mm polished brass butt hinges	14	PRS		
L M N	Door closer as union ref 8850 to concrete or blockwork fixing with bolts; plugging	2	NO		
OP	Rubber door stop complete with 38 mm rawl bolt	10	NO		
	Brass coat and hat hooks	7	NO		
	Door cramps	24	NO		
	Indicator bolts	7	NO		
	Toilet Signs	2	NO		
	Brass tower bolts	7	NO		
	Fire exit panic push bar complete with all necessary accessories, locksets, handles etc. as per manufacturers specifications	1	NO		
	600mm long x 100m wide brass kicking plate	7	NO		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	COLLECTION				
	Brought Forward From Page No. 5				
	Brought Forward From Page No. 6				
	Brought Forward From Page No. 7				
	Element No.4; Doors				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 5				
	FINISHES				
	External Finishes				
	15 mm thick cement and sand (1:4) render as described to:-				
AB	Sides of wall	25	SM		
	Window reveals and jambs 0 - 100mm	41	LM		
	Internal Finishes				
C	Cement and sand (1:4) screed as described in:-				
D	30 mm thick cement and sand screed to receive granito floor tiles(m.s)	405	SM		
E	30 mm thick cement and sand screed to receive ceramic floor tiles(m.s)	20	SM		
	30 mm thick cement and sand screed smooth finished to receive carpet floor tile finish(m.s)	205	SM		
	Approved polished granito tiles; local regular or other approved pattern; bedding and jointing in cement sand (1:4) mortar; grouting with matching cement all as per the Interior Designer / Architect's design & details				
F	600 x 600 x 10mm thick; butt joints both ways; with approved tile adhesive on cement base (m/s); with and including matching grout to floors level; internal	405	SM		
G	100 mm high skirting; straight junction with wall and floor finish.	51	LM		
	Approved ceramic tiles to B.S, 1281; local; coloured, glazed wall tiles to regular or approved other pattern; bedding and jointing in cement sand (1:4) mortar, grouting with white cement as per the Interior Designer / Architect's design & details				
H	400 x 400 x 8mm thick; butt joints both ways; with approved tile adhesive base (m/s); with and including matching grout to floors level; internally	20	SM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Carpet tile				
A	Provide and lay 600 x 600 x 5mm thick executive heavy duty carpets tile; minimum 80% wool and 20% nylon (polyamide) fused in woven textile backing 1400/1040 g/Sm, anti-soiling treated, permanently anti-static, including all the necessary fixing metal clips, grippers, stoppers, complete with strip bond at the edges or other equal and approved quality all as per the Interior Designer / Architect's design & details	205	SM		
BC	Provide underfelt and fix with approved adhesive as 'Pattex' or other equal and approved	205	SM		
	25 x 100mm high stainless steel skirting on plain MDF backing	284	LM		
DEF	15 mm thick two coat gauged lime plaster to:-				
	Walls, beams and columns; internal	277	SM		
G	Isolated columns; internal	190	SM		
	Window reveals and jambs 0 - 100mm	41	LM		
	Cement and sand (1:3)				
	14mm thick one coat backings; wood floated to receive ceramic tiles (m/s) to concrete or blockwork base; to walls Internal	28	SM		
H	Approved ceramic tiles to B.S, 1281; local; coloured, glazed wall tiles to regular or approved other pattern; bedding and jointing in cement sand (1:4) mortar, grouting with white cement as per the Interior Designer / Architect's design & details				
J	400 x 200 x 6mm thick; butt joints straight both ways; with approved tile adhesive on cement base (m/s); with and including matching grout to walls internally	28	SM		
	Acoustic Ceilings				
	600 x 600 x 15mm matt finish; suspended mineral fiberboards acoustic ceiling tiles including concealed 'T' frame grid system, tegular edges, shallow gap trims and suspension hangers; as Armstrong or other equal and approved.	328	SM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Gypsum board to BS1230				
A	9mm thick gypsum board in suspended ceiling including dropped bulkhead complete with vertical fascia; fixed with and including steel hangers, all in accordance with Interior Designer / Architect's details (Area measured net)	390	SM		
	PAINTING AND DECORATING				
	Skimming and sanding of surfaces to Architect's approval; prepare and apply one undercoat and three coats of silk vinyl paint to: -				
BCD	Plastered and gypsum surfaces; internal	1437	SM		
	Window reveals and jambs 0 - 100mm	41	LM		
E	Decorative molded gypsum board	390	SM		
	Prepare and apply one coats of silk vinyl paint to the following surfaces				
	Plastered surfaces; internal	360	SM		
FG	Prepare and apply wall master according to manufacturer instructions on rendered surfaces				
	Externally on:-				
	Sides of wall	25	SM		
H	Window reveals and jambs 0 - 100mm	41	LM		
	Stainless Steel and Glass Balustrading				
	600mm high stainless balustrades comprising 65mm diameter handrail, 50mm diameter balusters one end welded to handrail and other end cast into concrete at 900mm centers, infilled with 10mm toughened clear glass with necessary accessories to Architect's details.	18	LM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	COLLECTION				
	Brought Forward From Page No. 9				
	Brought Forward From Page No. 10				
	Brought Forward From Page No. 11				
	Element No.5; Finishes				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 6				
	JOINERY, FIXTURES AND FITTINGS				
	(ALL PROVISIONAL)				
	All Joinery Work Shall Strictly Be in accordance with the Interior Designer / Architect Details and Specifications.				
	Kitchen Cupboards:				
A	Low level kitchen cabinet overall size 7900 x 600 x 800 mm high in particle board carcass: with doors, under bench cupboards and drawers including 100mm high insitu class 20 concrete plinth as per Architect details	1	NO		
B	Ditto but high level kitchen cabinet overall size 6000 x 400 x 600 mm high: with doors and shelving.	1	NO		
	Granite				
C	25mm thick polished galaxy black granite finish to counter top on board carcass (m.s) with straight joints and pointing in coloured cement including rounded edges and cutting for sink	5	SM		
D	Ditto 150mm high fascia	8	LM		
	Element No.6: Joinery, Fittings and Fixtures				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 7				
	BUILDERS WORK FOR ENGINEERING SERVICES				
	All provisional				
	Cut and/or leave holes and make good thereafter for sanitary fittings				
ABC	W.C. Suite	4	NO		
D	Urinals	3	NO		
	Wash hand basins	4	NO		
E F G	Kitchen Sinks	2	NO		
HJ	Cut and/or leave holes and make good thereafter for electrical installations				
	Lighting points and switches	130	NO		
KL	Power points	350	NO		
	T.V aerial output points	3	NO		
	Consumer unit	1	NO		
	Meter Board	1	NO		
	Chasing and making good for small pipes in:				
	Concrete beds and slabs	55	LM		
	Masonry walls	110	LM		
	Element No.7: Builder's Work For Engineering Services				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	SECTION SUMMARY				
NO.	**TITLE**				**AMOUNT**
1	WALLING				
2	PARTITIONS				
3	WINDOWS				
4	DOORS				
5	FINISHES				
6	JOINERY, FIXTURES & FITTINGS				
7	BUILDER'S WORK IN RELATION TO SERVICES				
	TOTAL FOR UPPER LEVEL OFFICE CARRIED TO SUMMARY				

B. LOWER LEVEL OFFICE

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	BILL NO. 5				
	LOWER LEVEL OFFICE				
	ELEMENT NO. 1				
	STRUCTURAL STEEL & CONCRETE WORKS				
	Structural steelworks complete with all welding cutting and accessories to Structural Engineer details				
A B	IPE-AA 180 beam	7244	KG		
C D	203 x 133 x 25 Universal Beams	5350	KG		
EFG	305 x 102 x 25 Universal Beams	5250	KG		
HJ	406 x 140 x 39 Universal Beams	4878	KG		
	406 x 178 x 54 Universal Beams	4810	KG		
K	152 x 89 x 16 Universal Beams	1256	KG		
L M	150 x 100 x 4 mm RHS Beams	1920	KG		
N	140 x 60 x 6 mm Steel Channel	580	KG		
	50 x 50 x 3 mm RSA (Rolled Steel Angle)	360	KG		
	MS Plates				
OP	600 x 250 x 12 mm thick end plate with 6no. 22mm diameter holes welded to l - beams (m.s)	62	NO.		
	Ditto size 600 x 150 x 12 mm	12	NO.		
	Ditto size 350 x 200 x 12 mm	290	NO.		
	150 x 12mm mm thick to risers	16	LM		
	Bolts				
	Grade 8.8 M16 rawl bolts 200mm long including heads, nuts and washers.	354	NO.		
	Ditto but 150 mm in beam to beam connection	882	NO.		
	Carried to Collection			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Holes and Welds				
A	Allow for fillet welding of 200 x 150 x 8 mm ms plate on PE-AA 160 beam	118	NO.		
B C	Allow for making / drilling 8 mm holes in 600 x 250 x 12mm ms plate	118	NO.		
D	Ditto to mild steel plates size 600 x 150 x 12mm ms plate	118	NO.		
	Ditto to mild steel plates size 350 x 200 x 12mm ms plate	882	NO.		
EFG	Suspended Slab & Screed				
H	50 mm thick insitu concrete class 25/20 (1:1.5:3 nominal mix): vibrated: reinforced: in suspended slab	305	SM		
	20 gauge Safdeck structural decking sheets	305	SM		
JKL	BRC mesh fabric reinforced reference No. A142 laid in slab (measured net - no allowance made for laps)	305	SM		
	20 mm thick cement and sand screed on new concrete surface	305	SM		
	Prepare prime and paint two undercoats and one finishing coat gloss oil paint on structural steelwork as described				
	Surfaces of mild steel plates size 600 x 250 mm	24	SM		
	Ditto to mild steel plates size 350 x 200 mm	99	SM		
	Ditto to structural steel	30708	Kg		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	COLLECTION				
	Brought Forward From Page No. 1				
	Brought Forward From Page No. 2				
	Element No.1;Structural Steel & Concrete Works				
	Carried to Summary			Kshs.	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 2				
	REINFORCED CONCRETE SUPERSTRUCTURE				
	Insitu concrete class 25/20 (1:1.5:3 nominal mix): vibrated: reinforced: in				
AB	Columns	1	CM		
	Beams	3	CM		
C	High tensile square twisted to B.S 4461 as described in:-				
	Assorted bars to structural engineers schedule (**beams *& columns)***	560	Kg		
DE	Sawn formwork to:-				
	Sides of columns	16	SM		
	Sides and horizontal soffits of beams	52	SM		
	Element No.2; Reinforced Concrete Superstrucure				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 3				
	WALLING				
	Machine cut natural stone walling with a minimum of 7.0 N/mm2 average compressive strength to B.S 5390; bedded and jointed in cement and sand(1:4) mortar; reinforced with 25 x 3 mm hick hoop iron strips at alternate courses to: -				
	Externally				
A	150 mm thick walls	59	SM		
	Internally				
BC	150 mm thick walls100	262	SM		
	mm thick walls	76	LM		
	Element No.3; Walling				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 4				
	PARTITIONS				
	All partitions shall be in accordance with the Interior Designer / Architect Details and Specifications.				
	Dry wall system comprising 75 mm wide studs at 400mm centers as Donn Utrasteel (S.S) or approved equivalent; 12mm each gypsum board to both sides with 50mm thick "Rockwool" insulation within; system to come complete with attendant wall started, recessed head, corner bead and other sections to ensure smooth connection to walling, ceiling and floor surfaces				
AB	100mm thick soundproofed partition wall	52	SM		
	100mm thick partition wall	301	SM		
C	**Frameless Clear Glass Partitions** Supply and fix 10 mm thick frameless laminated clear glass partitions wall complete with all necessary stainless steel fittings as per Architect and Interior Designers specifications	160	SM		
D	**Branding (Provisional)** Allow for supply and fix branding film as per Architect and Interior Designers specifications	160	SM		
	Element No.4; Partitions				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 5				
	ROOF				
	Roof covering				
A	24 Gauge IT5 pre-painted roofing sheets cover fixed with and including J-bolts with all accessories to approval	123	SM		
	Rain water goods				
	The following in 24 gauge galvanized steel				
B	300 x 150mm high box profile gutter complete with support brackets to Structural Engineer details	12	LM		
	Element No.5; Roof Covering				
	Carried to Summary				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 6				
	WINDOWS				
	Supply and fix Powder coated aluminium framed windows, to be fabricated from approved composite extruded powder coated heavy duty hollow or angle sections (minimum 2 mm thick); including glazing with 6 mm thick laminated glass secured to framing using approved rubber glazing strips and aluminiun beading; frames and framing all round mitred at corners including reinforcing cleats, fixing with aluminium screws; plugging and fixing to jambs; sealing with mastic; oiling and adjusting on completion and all necessary ironmongery such as hinges, locking devices such as windows fasteners, stays locks, bolts sliding tracks etc. all as per the Architect's schedule				
AB	Window size 3000 x 1500 mm high	1	NO		
	Window size 1200 x 700 mm high	11	NO		
	CURTAIN WALLING				
C	Supply, assemble and fix the following weather tight curtain-wall system with horizontal and vertical, visible powder coated aluminium frame; structurally glazed with 8 mm tinted glass panels, including all necessary accessories such as EPDM gaskets, mild steel powder coated fixing brackets, beading and the like; including openable panels; all as per the Architect's design & details				
	Externally	260	SM		
D	Bull-nosed concrete, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar				
	150 x 25mm thick concrete window sill	16	LM		
E F	Wrot Mahogany				
	200 x 25 mm thick window boards including bullnosed edges	16	LM		
	25 x 25 mm bearer; plugged, counter sinking and flush pelleting.	16	LM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Window blinds				
A	Supply and install vertical window blinds complete with railing and opening mechanism in accordance with Interior Designer's details.	260	SM		
	Painting and Decorations				
	Knot, prime, stop, prepare and apply three coats polyurethane clear varnish on woodwork internally				
BC	200-300mm girth; window boards/Pelmet	16	LM		
	0 - 100mm girth; quadrant	16	LM		
	Carried to Collection				
	COLLECTION				
	Brought Forward From Page No. 8				
	Brought Forward From Page No. 9				
	Element No.6; Windows				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 7				
	DOORS				
	All doors as per the Architect's schedule				
	FRAMELESS GLASS DOOR				
	10mm thick toughened frameless glass manual openable door; complete with and including soft closing hinges, locks, catches, automatic door closer, oval satin door stopper, stainless steel pull handles, stainless steel push/pull plate, accessories, opening mechanism and any other necessary ironmongery all as "ASSA ABLOY" or equal and approved including frosted sticker film				
AB	Overall size 1800 x 2100mm high	1	NO		
	Overall size 900 x 2400mm high	4	NO		
C	Galvanize Steel solid door with 10mm thick tempered view glass and louvered panel to Architect's details				
	Overall size 900 x 2400mm high	3	NO		
D	Anodized aluminium framed sliding door and glazed with 6mm thick laminated clear glass; to framing using approved rubber glazing strips and aluminiun beading; frames and framing all round mitred at corners including reinforcing cleats, fixing with aluminium screws; plugging and fixing to jambs; sealing with mastic; oiling and adjusting on completion including ironmongery all as "ASSA ABLOY" or equal and approved				
	Door size 1500 x 2100 mm high	3	NO		
EF	Semi- solid core mahogany veneered flush doors				
	Door size 900 x 2100 mm high	7	NO		
G	Door size 800 x 2100 mm high	8	NO		
	Louvered mahogany panel door				
	Door size 800 x 2100 mm high	4	NO		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Wrot Mahogany framed frames and framings				
A B	200 x 50 mm; 2 No. labours; plugged door frame	106	LM		
C	50 x 20mm architraves	106	LM		
	25 x 25mm quadrants	106	LM		
	Painting and Decorations				
D	Prepare and apply three coats oil paint full gloss to Crown Solo or other equal and approved to: -				
	General surfaces of metal doors; over 300mm girth internal	13	SM		
E F	Aluminium primer or other equal and approved wood primer before fixing: -				
	Backs of frame, board, etc. n.e. 100mm	106	LM		
	Ditto 100 - 200mm	106	LM		
GHJ	Prepare and apply three coats polyurethane matt varnish on woodwork internally				
	General surfaces of timber doors over 300mm girth; internal	75	SM		
	Frames; over 200mm but not exceeding 300mm girth; internal	212	LM		
	Frames not exceeding 100mm girth; internal	106	LM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Ironmongery				
	Supply and fix the following to UNION catalogue or other equal andapproved to softwood, hardwood or the like fixing with screws				
A B	Five lever mortice lock complete with set lever brass handle furniture	3	NO		
C	Three lever ditto	22	NO		
D	150mm polished brass butt hinges	39	PRS		
EFG	Door closer as union ref 8850 to concrete or blockwork fixing with bolts; plugging	3	NO		
HJ	Rubber door stop complete with 38 mm rawl bolt	25	NO		
K	Brass coat and hat hooks	17	NO		
LM	Door cramps	57	NO		
	Indicator bolts	10	NO		
	Toilet Signs	4	NO		
	Brass tower bolts	10	NO		
	Fire exit panic push bar complete with all necessary accessories, locksets, handles etc. as per manufacturers specifications	1	NO		
	600mm long x 100m wide brass kicking plate	17	NO		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	COLLECTION				
	Brought Forward From Page No. 10				
	Brought Forward From Page No. 11				
	Brought Forward From Page No. 12				
	Element No.7; Doors				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 8				
	FINISHES				
	External Finishes				
	15 mm thick cement and sand (1:4) render as described to:-				
AB	Sides of wall	59	SM		
	Window reveals and jambs 0 - 100mm	35	LM		
	Internal Finishes				
CD	Cement and sand (1:4) screed as described in:-				
E	30 mm thick cement and sand screed to receive granito floor tiles(m.s)30	565	SM		
	mm thick cement and sand screed to receive ceramic floor tiles(m.s)	72	SM		
	30 mm thick cement and sand screed smooth finished to receive carpet floor tile finish(m.s)	134	SM		
F	Approved polished granito tiles; local regular or other approved pattern; bedding and jointing in cement sand (1:4) mortar; grouting with matching cement all as per the Interior Designer / Architect's design & details				
G	600 x 600 x 10mm thick; butt joints both ways; with approved tile adhesive on cement base (m/s); with and including matching grout to floors level; internal	565	SM		
	100 mm high skirting; straight junction with wall and floor finish.	303	LM		
H	Approved ceramic tiles; local; non slip tiles to regular or other approved pattern; bedding and jointing in cement sand (1:4) mortar; grouting with matching cement all as per the Interior Designer / Architect's design & details				
	400 x 400 x 8mm thick; butt joints both ways; with approved tile adhesive base (m/s); with and including matching grout to floors level; internally	72	SM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Carpet tile				
A	Provide and lay 600 x 600 x 5mm thick executive heavy duty carpets tile; minimum 80% wool and 20% nylon (polyamide) fused in woven textile backing 1400/1040 g/Sm, anti-soiling treated, permanently anti-static, including all the necessary fixing metal clips, grippers, stoppers, complete with strip bond at the edges or other equal and approved quality all as per the Interior Designer / Architect's design & details	134	SM		
B	Provide underfelt and fix with approved adhesive as 'Pattex' or other equal and approved	134	SM		
C	25 x 100mm high stainless steel skirting on plain MDF backing	66	LM		
	15 mm thick two coat gauged lime plaster to:-				
DE	Walls, beams and columns; internal	641	SM		
	Window reveals and jambs 0 - 100mm	35	LM		
F	Cement and sand (1:3)				
	14mm thick one coat backings; wood floated to receive ceramic tiles (m/s) to concrete or blockwork base; to walls Internal	72	SM		
G	Approved ceramic tiles to B.S, 1281; local; coloured, glazed wall tiles to regular or approved other pattern; bedding and jointing in cement sand (1:4) mortar, grouting with white cement as per the Interior Designer / Architect's design & details				
	400 x 200 x 6mm thick; butt joints straight both ways; with approved tile adhesive on cement base (m/s); with and including matching grout to walls internally	72	SM		
H	Acoustic Ceilings				
	600 x 600 x 15mm matt finish; suspended mineral fiberboards acoustic ceiling tiles including concealed 'T' frame grid system, tegular edges, shallow gap trims and suspension hangers; as Armstrong or other equal and approved.	728	SM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	Gypsum board to BS1230				
A	9mm thick gypsum board in suspended ceiling including dropped bulkhead complete with vertical fascia; fixed with and including steel hangers, all in accordance with Interior Designer / Architect's details (Area measured net)	90	SM		
	Staircase Finishes				
	Wrot mahogany				
B	300 x 50mm thick treads fixed to steel with and including fixing screws and anti-slip grooves to Architect's details	72	LM		
C	150 x 50mm thick risers fixed to steel with and including fixing screws to Architect's details	72	LM		
	PAINTING AND DECORATING				
	Skimming and sanding of surfaces to Architect's approval; prepare and apply one undercoat and three coats of silk vinyl paint to: -				
DEF	Plastered and gypsum surfaces; internal	1347	SM		
	Window reveals and jambs 0 - 100mm	35	LM		
G	Decorative molded gypsum board	90	SM		
	Prepare and apply one coats of silk vinyl paint to the following surfaces				
H	Plastered surfaces; internal	472	SM		
	Prepare including sanding surfaces and apply one under coat approved stainand two finishing coats polyurethane varnish:-				
	Surfaces 200 - 300mm	144	LM		
JK	Prepare and apply wall master according to manufacturer instructions on rendered surfaces				
	Externally on:-				
	Sides of wall	59	SM		
	Window reveals and jambs 0 - 100mm	35	LM		
	Carried to Collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
A	Steel Balustrading 900mm high stainless balustrades comprising 65mm diameter handrail, 50mm diameter balusters one end welded to handrail and other end cast into concreteat 900mm centers, infilled with 10mm toughened clear glass with necessary accessories to Architect's details.	24	LM		
	Carried to Collection				
	COLLECTION Brought Forward From Page No. 14 Brought Forward From Page No. 15 Brought Forward From Page No. 16 Brought Forward From Page No. 17 **Element No.8; Finishes**				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 9				
	JOINERY, FIXTURES AND FITTINGS				
	(ALL PROVISIONAL)				
	All Joinery Work Shall Strictly Be in accordance with the Interior Designer / Architect Details and Specifications.				
	Kitchen Cupboards:				
A	Low level kitchen cabinet overall size 7900 x 600 x 800 mm high in particle board carcass: with doors, under bench cupboards and drawers including 100mm high insitu class 20 concrete plinth as per Architect details	1	NO		
B	Ditto but high level kitchen cabinet overall size 8800 x 400 x 600 mm high: with doors and shelving.	1	NO		
	Granite				
C	25mm thick polished galaxy black granite finish to counter top on board carcass (m.s) with straight joints and pointing in coloured cement including rounded edges and cutting for sink	8	SM		
D	Ditto 150mm high fascia	13	LM		
	Element No.9: Joinery, Fittings and Fixtures				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	ELEMENT NO. 10				
	BUILDERS WORK FOR ENGINEERING SERVICES				
	All provisional				
	Cut and/or leave holes and make good thereafter for sanitary fittings				
A B	W.C. Suite	4	NO		
CD	Urinals	3	NO		
	Wash hand basins	4	NO		
EFG	Kitchen Sinks	2	NO		
HJ	Cut and/or leave holes and make good thereafter for electrical installations				
	Lighting points and switches	130	NO		
KL	Power points	350	NO		
	T.V aerial output points	3	NO		
M	Consumer unit	1	NO		
	Meter Board	1	NO		
	Chasing and making good for small pipes in:				
	Concrete beds and slabs	55	LM		
	Masonry walls	110	LM		
	Kitchen				
	The contractor is to allow for all builders work for engineering services in connection with Fitted Kitchens		Item		
	Element No.10: Builder's Work For Engineering Services				
	Carried to Summary			**Kshs**	

ITEM	DESCRIPTION	QTY	UNIT	RATE KSHS	AMOUNT KSHS
	SECTION SUMMARY				
NO.	**TITLE**				**AMOUNT**
1	STRUCTURAL STEEL AND CONCRETE WORKS				
2	REINFORCED CONCRETE SUPERSTRUCTURE				
3	WALLING				
4	PARTITIONS				
5	ROOF				
6	WINDOWS				
7	DOORS				
8	FINISHES				
9	JOINERY, FIXTURES AND FITTINGS				
10	BUILDER'S WORK IN RELATION TO SERVICES				

	TOTAL FOR LOWER LEVEL OFFICE CARRIED TO SUMMARY				

PROPOSED OFFICE FITOUT WORKS AT KENGEN RBS PENSION PLAZA II SIXTH FLOOR

BUILDERS WORK FOR OFFICE FITOUTBUILDERS WORK SUMMARY

ITEM	ELEMENTS	AMOUNT(KSHS)
1	UPPER LEVEL OFFCE	
2	LOWER LEVEL OFFICE	
	TOTAL FOR OFFICE FITOUT - BUILDERS WORK CARRIED TO GRAND SUMMARY	

SCHEDULE 5

ELECTRICAL WORKS, FIRE ALARM SYTEMS, UPS INSTALLATIONS AND AUTOMATIC VOLTAGE STABILIZER

A ELECTRICAL INSTALLATIONS

All lighting points shall as a mandatory requirement have cables from the conduit round box neatly concealed using a ceiling rose c/w a biscuit ring and upto 2 meters long 1.5mm sq 3 core white flex from the connector block to the Light fittings. 5Amp cable connector blocks must be used to connect the flex cable to the concealed cables. Pricing for this must be included in the rates.

All LED Luminaires MUST have an efficacy of 100Lumens/Watt as a minimum. Proof of this will be needed in the form of manufacturers datasheets.
All Cables with Multiples runs have their measurements catered for in the quantities. Rate shouldbe for Run Only.
The Client reserves the right to provide any or all of the SUPPLY ONLY Items and no claims such as loss of profit shall be entertained .

Cables to be Metsec/East African cables to Engineer's approval

A1 Lighting cabling installations

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A1.01	1 way switching lighting points wired in 3x1.5mm sq PVC insulated single core copper cables drawn in 20mm Ø. HG PVC conduits concealed in building fabrics.	No.	87		-
A1.02	2 way switching lighting points wired in 3x1.5mm sq PVC insulated single core copper cables drawn in 20mm Ø. HG PVC conduits concealed in building fabrics.	No.	178		-
A1.03	OCCUPATIONAL SENSORS: Ceiling mount PIR detector with a 360 degree view angle anda hard shell spherical lens. The sensor/detector should have a minimum adjustable range of 15meters or more mounted at a height of 4000mm to Engineers approval.This Shall be as HONEYWELL EX-OR MULTI-FUNCTION PIR to Engineers approval.	No.	16		-
A1.04	EXIT : Self contained Suspended / Surface mounted Double Sided Maintained LED Exit Sign. It should have a minimum viewing distance of 27 meters & 3-Hour maintained operation inbuilt battery system. This should be White finish with Extruded Aluminium Body, Engraved flame retardant acrylic Blade& for 8W LED with constant colour Temperature (i.e. Ra>92) over the product lifecycle as THORN VOYAGER LED to Engineers approval.	No.	4		-
A1.05	**Total for Lighting cabling installations c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

A1.1 Switches & Accessories (Supply Only)

A1.11	10A 1 Gang 1 Way moulded case plate switch as MK, Legrand to Engineers approval	No.	33		-
A1.12	10A 1 gang 2 way plate switch as MK, Legrand to Engineers approval	No.	8		-
A1.13	10A 2 gang 1way plate switch as MK,Legrand to Engineers approval	No.	6		-
A1.14	10A 2 gang 2 way plate switch as MK, Legrand to Engineers approval	No.	6		-
A1.15	10A 3 gang 1 way plate switch as MK, Legrand to Engineers approval	No.	5		-
A1.16	10A 3 gang 2 way plate switch as MK, Legrand to Engineers approval	No.	5		-
A1.17	Door bell 6A 1 gang SP retractive switch as massive	No.	1		-
A1.18	6A 1 Gang 1 Way moulded case Architrave Switch.	No.	6		-
A1.19	6A 1 Gang 2 Way moulded case Architrave Switch.	No.	6		-
A1.20	**Total for Switches & Accessories (Supply Only) c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A1.2	**Switches & Accessories (Fix Only)**				
A1.21	10A 1 Gang 1 Way moulded case plate switch as MK, Legrand to Engineers approval	No.	33		-
A1.22	10A 1 gang 2 way plate switch as MK, Legrand to Engineers approval	No.	8		-
A1.23	10A 2 gang 1way plate switch as MK,Legrand to Engineers approval	No.	6		-
A1.24	10A 2 gang 2 way plate switch as MK, Legrand to Engineers approval	No.	6		-
A1.25	10A 3 gang 1 way plate switch as MK, Legrand to Engineers approval	No.	5		-
A1.26	10A 3 gang 2 way plate switch as MK, Legrand to Engineers approval	No.	5		-
A1.27	Door bell 6A 1 gang SP retractive switch as massive	No.	6		-
A1.28	6A 1 Gang 1 Way moulded case Architrave Switch.	No.	6		-
A1.29	6A 1 Gang 2 Way moulded case Architrave Switch.	No.	6		-
A1.30	**Total for Switches & Accessories (Fix Only) c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

A2 Light fittings & Accessories (Supply Only)

Kindly note that the rate of the accessories below should include the airfreight cost if notavailable in the local market at time of bid.

A2.01	**TYPE 1:** Ceiling mounted LED lights .To be Braid CL210 Ess. RD 24W 65K W 02 to Engineers approval.	No.	1		-
A2.02	**LED PANEL**: RECESSED 600*600 Ultra Slim Modular 45W LED Luminaire for lay in installation with MPT Optic & Opal diffuser for 3500 lm. This should be 600mm by 600mm with a depth of 63mm Maximum, IP40 Rated c/w Driver & all accessories. This will be as VTAC to Approval.	No.	136		-
A2.03	**TYPE D1:** Recessed IP44, LED downlight 18W Cool white 4500K,0.9PF, 150mm diameter,has aluminium housing, c/w all Accessories as LEDVANCE ALU downlight, Panasonic or Philips for gypsum and acoustic ceiling areas	No.	20		-
A2.04	**TYPE D2:** Recessed mounted downlight 5W Cool white 4500K ,0.9PF,50mm diameter, c/w all Accessories as LEDVANCE spot round fix,Panasonic or Philips.	No.	66		-
A2.05	**TYPE D3:** Recessed mounted downlight 12W Cool white 4500K ,0.9PF,81mm diameter, c/w all Accessories as LEDVANCE spot round fix,Panasonic or Philips.	No.	38		-
A2.06	**Type ML;**Mirror light as Thorn IP44 24W shaver light	No.	5		-
A2.07	**Total for Light fittings & Accessories (Supply only) c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

A2.10 Light fittings & Accessories (Fix Only)

Kindly note that the rate of the accessories below should include the airfreight cost if notavailable in the local market at time of bid.

A2.11	TYPE 1: Ceiling mounted LED lights .To be Braid CL210 Ess. RD 24W 65K W 02 to Engineers approval.	No.	1		-
A2.12	LED PANEL: RECESSED 600*600 Ultra Slim Modular 45W LED Luminaire for lay in installation with MPT Optic & Opal diffuser for 3500 lm. This should be 600mm by 600mm with a depth of 63mm Maximum, IP40 Rated c/w Driver & all accessories. This will be as VTAC to Approval.	No.	136		-
A2.13	TYPE D1: Recessed IP44, LED downlight 18W Cool white 4500K,0.9PF, 150mm diameter,has aluminium housing, c/w all Accessories as LEDVANCE ALU downlight, Panasonic or Philips for gypsum and acoustic ceiling areas	No.	20		-
A2.14	TYPE D2: Recessed mounted downlight 5W Cool white 4500K ,0.9PF,50mm diameter, c/w all Accessories as LEDVANCE spot round fix,Panasonic or Philips.	No.	66		-
A2.15	TYPE D3: Recessed mounted downlight 12W Cool white 4500K ,0.9PF,81mm diameter, c/w all Accessories as LEDVANCE spot round fix,Panasonic or Philips.	No.	38		-
A2.16	Type ML;Mirror light as Thorn IP44 24W shaver light	No.	5		-
A2.17	**Total for Light fittings & Accessories (Fix Only) c/f to Electrical Price Collection page**				**-**

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

A3 **Trunking & Cable Tray installations**

A3.01	**CABLE TRAY (POWER): 3**00 x 50mm galvanised steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval. Includes equipotential bonding.	LM	150		-
A3.02	**CABLE TRAY (DATA): 3**00 x 50mm galvanised steel factory fabricated Cable tray complete with angle bends, Tees, end caps and mounting brackets & accessories to detail and to approval. Includes equipotential bonding.	LM	150		-
A3.03	**TRUNKING**: 200 x 50mm, 3 compartment stove enamelled factory fabricated metallic trunking c/w angle bends, Tees, end caps to detail and and mounting brackets & accessories to approval. Includes equipotential bonding.	LM	80		-
A3.04	**50mm** Ø HG PVC conduits for linking across gypsum ceilings and should be anchored firmly on top of the cable trays.	LM	50		-
A3.05	**Total for Trunking & Cable Tray installations c/f to Electrical Price Collection page**				**-**

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A4	**Power Outlets-Small power**				
A4.01	**RAW POWER SOCKETS:** Ring mains socket outlets in 2.5mm sq PVC - Insulatedtwin + earth CU cables drawn in concealed20mm Ø HG PVC conduits concealed in building fabrics or in trunking.	No.	121		-
A4.02	13A twin switched socket plate as ABB,MKor its equivalent	No.	119		-
A4.03	SOCKET (15A): 15A Single shutttered switched socket plate c/w neon indicator	No.	2		-
A4.04	**CLEAN POWER SOCKETS:** Ring mains socket outlets in 2.5mm sq PVC - Insulatedtwin + earth CU cables drawn in concealed20mm Ø HG PVC conduits concealed in building fabrics or in trunking.	No.	149		-
A4.05	13A twin switched socket plate as ABB,MKor its equivalent	No.	149		-
A4.06	**Cooker outlet point** wired in 3 x 6.0mm2PVC insulated single core copper cables drawn in 25mm HG PVC conduits	No.	2		-
A4.07	45A DP switched cooker control unit withcable outlet c/w 3 Terminal connector for cooker unit above	No.	2		-
A4.08	**CCTV:** Outlets for Cameras interlinked in concealed 32mm Ø HG PVC conduit c/w draw wire.	No.	17		-
A4.09	**DATA**: Conduit Outlets for data point in concealed 32mm Ø HG PVC conduit c/w draw wire radiating in a star topology from the provided ICT Duct.To house	No.	158		-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A4.10	**Telephone point**: Conduit Outlets for data point in concealed 32mm Ø HG PVC conduit c/w draw wire radiating from intruder panelto transmitter	No.	0		-
A4.11	**TV:** Outlets for TV in concealed 32mm Ø HG PVC conduit c/w draw wire.	No.	7		-
A4.12	**Access Control:** Outlets for Access Control in concealed 32mm Ø HG PVC conduit c/w draw wire.	No.	6		-
A4.13	**Intruder Alarm:** Outlets for Access Control in concealed 32mm Ø HG PVC conduit c/w draw wire.	No.	4		-
A4.14	**WAP:** Wifi Outlets in concealed 32mm Ø HG PVC conduit c/w draw wire.	No.	6		-
A4.15	Purpose made compartmentalised adaptable boxes for Power, TV and Intercom to Engineer's detail and to approval	No.	4		-
A4.17	**Total for Power Supply to workstations c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

A5 **Power Supply to Mechanical Equipment**

A5.01	**INDOOR AC POWER POINT:** Single phase Air conditioning units outlet points wired in 2.5mm2 Flex CU cables from DB to DP switch next to the unit.	No.	31		-
A5.02	**DP SWITCH:** 20A fused Switched DP control switch with neon indicator for power c/w 2.5mm2 3 core white flex cable to unit	No.	31		-
A5.03	**OUTDOOR AC**: Three phase outlet points wired in 6.0mm sq 4 Core PVC SWA PVC CU cables to the Isolator in close proximity to the Unit	No.	30		-
A5.04	**ISOLATOR (OUTDOOR AC)**: 40A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	3		-
A5.05	**MECHANICAL VENTILLATION:** Single phase ventillation outlet points wired in 2.5mm2 Flex CU cables from DB to DP switch next to the unit in ceiling.	No.	8		-
A5.06	20A fused, switched DP control switch with neon indicator for above ventilation system as ABB or Equivalent	No.	8		-
A5.07	**HAND DRIERS:** Single phase ventillation outlet points wired in 2.5mm2 Flex CU cables from DB to DP switch next to the unit in ceiling.	No.	5		-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A5.08	20A fused, switched DP control switch with neon indicator for above ventilation system as ABB or Equivalent	No.	5		-
A5.09	**KITCHEN HOOD**: Kitchen extract fan point through a DP switch wired in 3 x 2.5mm2 PVC insulated single core copper cables drawn in 20mm Ø HG PVC conduits concealed in building fabrics	No.	5		-
A5.10	20A fused, switched DP control switch with neon indicator for above kitchenhood as MK or Equivalent	No.	5		-
A5.11	**UWH:** UWH point wired in 3 x 2.5mm2 PVC insulated single core copper cables drawn in concealed 20mm Ø HG PVC conduits concealed in building fabrics.	No.	6		-
A5.12	20A fused, switched DP control switch with neon indicator as ABB, or equivalent	No.	6		-
A5.13	**Total for Power supply to Equipment c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

A6 **Power distribution & submains cables**

A6.01	**DISTRIBUTION BOARDS (RAW POWER**) ' : 16 way Distribution board with 125A rated TPN Integrated Isolator. Should be Wall mounted c/w all accessories	No.	2		-
A6.02	10A SP MCB for DB above	No.	10		-
A6.03	20A SP MCB for DB above	No.	50		-
A6.04	32A SP MCB for DB above	No.	10		-
A6.05	20A TP MCB for DB above	No.	2		-
A6.06	32A TP MCB for DB above	No.	0		-
A6.07	40A TP MCB for DB above	No.	2		-
A6.07	63A TP MCB for DB above	No.	2		-
A6.08	SP Blanking plates for DB above	No.	2		-
A6.09	TP Blanking plates for DB above	No.	2		-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A6.10	Supply and install 25 mm sq 4 core PVC PVC CU cable to DB (Subject to site remeasurement)	LM	80		-
A6.11	Cable glands for DB cables above	No.	4		-
A6.12	Cable lugs for DB cables above.	No.	16		-
A6.01	**DISTRIBUTION BOARDS (CLEAN POWER**) ' : 16 way Distribution board with 100A rated TPN Integrated Isolator. Should be Wall mounted c/w all accessories	No.	2		-
A6.02	10A SP MCB for DB above	No.	10		-
A6.03	20A SP MCB for DB above	No.	40		-
A6.04	32A SP MCB for DB above	No.	20		-
A6.05	20A TP MCB for DB above	No.	2		-
A6.06	32A TP MCB for DB above	No.	1		-
A6.07	40A TP MCB for DB above	#REF!	2		-
A6.08	SP Blanking plates for DB above	No.	8		-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A6.09	TP Blanking plates for DB above	No.	1		-
A6.10	Supply and install 16mm sq 4 core PVC PVC CU cable to DB (Subject to site remeasurement)	LM	140		-
A6.11	Cable glands for DB cables above	No.	4		-
A6.12	Cable lugs for DB cables above.	No.	16		-
A6.28	Supply and install 16mm sq 5 core PVC PVC CU cable for Clean Power to the UPS (Subject to site remeasurement)	LM	80		-
A6.31	Supply and install 35mm sq 4 core PVC SWA PVC CU cable to AVS (Subject to site remeasurement)	LM	150		-
G1.4	**UPS Bypass** : 63A TP UPS Bypass Isolator. Should be wall mounted c/w 63A TP changeover switch manual Bypass switch complete with encloser. This should be properly labelled	Item	1		-
G1.5	Supply and install 16mm sq 5 core PVC PVC CU cable to the UPS interlinking ups isolator and manual bypass.	LM	30		-
A6.13	Labelling of DB's, CU's, Cables and final sub-circuits. This should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		-
A6.13	Sum for relocation of existing parking services system	Item	1		-
A6.14	**Total for Power distribution & submains cables c/f to Electrical Price Collection page**				-

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)

ELECTRICAL PRICE COLLECTION PAGE

A1	Lighting cabling installations			-
A2	Switches & Accessories (Supply Only)			-
A3	Switches & Accessories (Fix Only)			-
A4	Light fittings & Accessories (Supply Only)			-
A5	Light fittings & Accessories (Fix Only)			-
A6	Trunking & Cable Tray installations			-
A7	Power Outlets-Small power			-
A8	Power Supply to Mechanical Equipment			-
A9	Power distribution & submains cables			-
A10	**Total Exclusive of VAT c/f to ELECTRICAL WORKS GRAND SUMMARY PAGE**			**-**

B Fire Alarm Systems

Supply and Install addressable fire detection alarm system - The bidder to provide the detailed description, technical bronchures of the complete solution including floor layout drawings of theproposed systems and solution architecture.

Note: *All systems quoted for MUST meet the minimum threshold outlined in the techincal specifications*

NB: *Technical product Catalogues of the specified models should be attached as part of the Bid document.*

NB: Attach the Private Security Regualatory Authority (PSRA) License as required by PrivateSecurity Regulation Act, 2016.

Item	Description	Unit	QTY	RATE (Kshs)	TOTAL (KSHS)
B1.01	**FIRE ALARM PANEL 2-LOOP :** Addressable fire control panel as described in the particular specifications of this document. Special considerations to be made for this installation are: The panel should be able to; Loop & Communicate with all the other panels in the Premises Control all fire alarm devices. If not then include mimic panels in the quotation and specify in the section for "any additional items" below Be compatible with the fire escape pressurization fans to enable trigger the fans whenever a signal for fire is detected. Be compatible with Lifts & Security devices e.g. Access Control, CCTV & Other Systems in the building for ease of management. c/w an inbuilt integral Printer Be Network Ready Cater for All the devices listed below with an additional 20%		1		-
B1.02	**SMOKE DETECTORS (PHOTOELECRIC)**: Addressable Ionisation Smoke detector c/w Bases and all other accessories as described in the particular specifications of this document	No.	32		-
B1.03	**HEAT DETECTORS:** Addressable Ionisation Heat detector c/w Bases and all other accessories as described in the particular specifications of this document	No.	2		-

Item	Description	Unit	QTY	RATE (Kshs)	TOTAL (KSHS)
B1.04	**WALL SOUNDER BEACON & FLASHER UNIT (COMBINED):** Wall mounted Loop powered wall sounder combined with a flasher beacon (as one unit) as described in the particular specifications of this document	No.	4		-
B1.05	**MANUAL CALL POINT (BREAKGLASS) - As TYPE 01:** Surface manual call point.This should be a resettable breakglass unit as opposed to a glass as described in the particular specifications of this document	No.	4		-
B1.06	**CABLING (COMMON AREAS):** Common Areas Wiring of fire alarm call points using 1.5mm^2 fire resistant cable as FIRETEC or FP200 as described in the particular specifications of this document	No.	43		-
B1.08	**SHOP INTERPHASE UNIT:** Channel interface for linking the fire alarm system to other systems in the building complete with integral accessories as described in the particular specifications of this document	No.	1		-
B1.09	**Total for Fire Alarm System installations cost for c/f to GRAND SUMMARY PAGE**				-

C UPS INSTALLATIONS

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commissionthe works, clean, complete and working to every detail as described below and in the related specifications and /or on the drawings to the satisfaction of the Consulting Engineers.

Cables to be Metsec/East African cables to Engineer's approval

Item	Description	Unit	QTY	RATE (KSHS.)	COST (KSHS.)
C1.1	Three phase in, Three phase out 15KVA UPS with default back up time minimum *(20 minutes) at full load. The ups must have an integral maintenance by-pass as APC , Vertiv ,Eaton to approval .c/w surge arrestor.*	Item	2		-
	Make of the UPS_____				
	Model No. of the UPS_____.				
C1.2	Allow for an external battery park to enable the ups achieve the required backup time of 20minutes at full load.These shall be as CSB,Gaston,Yuasa to Engineer's approval.	Item	1		-
C1.3	Enclosed emergency trip push button. Located at UPS room entrance and wired appropriately such that it isolates the UPS supply on activation.	Item	1		-
C1.4	**Total for UPS Installations c/f to Electrical Price Collection page**				-

D AUTOMATIC VOLTAGE STABILIZER

- *The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the works, clean, complete and working to every detail as described below and in the related specifications and /or on the drawings to the satisfaction of the Consulting Engineers. He will also be expected to attend site meetings / inspections to ascertain all necessary provisions are in place well in advance.*

- *Bidders should note that Specifications Stated in the BQ schedules below shall be followed strictly and pricing shall include the same as specified. No change in specifications shall be allowed unless with the express authority of the engineers after validation of cause of change.*

NOTE:

- *Model to be as ORTEA,Belotti,Irem or Equivalent to Approval*

- *Safety Sinage Legible from 3m away as a minimum shall be installed at all areas where deemed possible to avoid injury or damage to proerty and live. This should be quoted for under Signage in the document.*

- *Technical product catalogues and specifications for quoted models to be attached*

- ***NOTE: Kindly Note that all Bidders Will be required to give the Authorization Letter from the Local Authorized agent for AVS. This will be Mandatory in the Evaluation.***

D 3-Φ AUTOMATIC VOLTAGE STABILIZER

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
D1.01	**AVS:** Automatic Voltage stabilizer c/w the features outlined in the particular specifications herein. The main specifications of the AVS are: •**90KVA Rated AVS** •Three Phase with Independent Regulation on each phase •Input: 415 ± 25% (3P+N) •Output: 415 ± 1% (3P+N) •Efficiency: 95% and above AC-AC •Cooling: Should be self cooling and should have extract fans to enhance the •C/w all software and hardware necessary for operation •Must be BMS compatible & ready with BACNET IP Protocol	No.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
	• BACNET IP Protocol compatible Gateway to be supplied in event of different protocol. • Should include Enclosed emergency trip push button and associated cabling				
D1.02	**ELECTRICAL WORKS:** Allow Sum for associated electrical termination works for AVS above.	Item	1		
D1.03	**HOISTING:** Allow sum for Hoisting of equipment where necessary	Item	1		
D1.04	**Total for AVS Installations Exclusive of VAT**				**-**

MAIN ELECTRICAL PRICE SUMMARY PAGE

ITEM	DESCRIPTION	COST (Kshs.)
1.01	Preliminaries & General conditions	
1.02	Electrical Installations	
1.03	Fire Alarm System	
1.04	UPS Installations	
1.05	AVS Installations	
1.06	Allow for KPLC Capital Contrilbution for meter separation(Subject to KPLC quotation)	350,000
1.07	Attendance to KPLC	
1.08	Allow sum for liaising with the building management for any necessary attendance and / inquiries	
1.09	Allow sum for demolitions of existing services.	
1.1	Sum for Completion documents: Comprising workshop drawings, manufacturer's technical product catalogues, users manuals, maintenance manuals, as installed drawings, test certificates, etc.	
1.11	Sum for Testing and commissioning of the entire installations set complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	
1.12	Sum for Training of client personel / users (At least 5No. Users)	
1.13	**Total for ELECTRICAL INSTALLATIONS EXCLUSIVE OF VAT**	
1.14	**ADD** 16%VAT	-
1.15	**Total for ELECTRICAL INSTALLATIONS INCLUSIVE OF VAT**	-

Total amount in words: Kshs_____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.:_____ V.A.T. Reg. No. : _____

Signed by:_____ Date _____

SCHEDULE 6

ICT AND SECURITY WORKS (DATA AND VOICE CABLING, CCTV INSTALLATION, AUDIO VISUAL INSTALLATIONS AND ACCESS CONTROL SYSTEMS)

E	**DATA & VOICE CABLING**				
Item	**Description**	**Unit**	**Qty**	**Rate (Kshs.)**	**Cost (Kshs.)**
E1.01	**DATA POINTS:** Horizontal cabling for data outlet points wired in 4 pair UTP CAT 6A CU cables drawn on cable tray, trunking and/or conduiting and radiating in a star topology from the existing Administration cabinet. As Siemons or equal and equivalent (average length of 65m)	No.	284		
E1.02	**DUAL GANG SOCKETS:** Rj45 Dual Gang socket outlet / faceplate c/w modules As Siemons or equal and equivalent	No.	142		
E1.03	**SINGLE GANG SOCKETS:** Rj45 Single Gang socket outlet / faceplate c/w modules As Siemons or equal and equivalent	No.	10		
E1.04	**DESK PATCH CORDS:** Drop cables / flyleads. Factory terminated, 3 meters long CAT 6A As Siemons or equal and equivalent	No.	284		
E1.05	**CABINET PATCH CORDS**: Cat 6A stranded 4 pair UTP patch cord. Factory terminated, 1 meter long CAT 6A. As Siemons: Colour coding to be done	No.	284		
E1.06	**DATA PATCH PANEL:** 24 port Data patch panel as siemons or equivalent	No.	1		
E1.07	**DATA PATCH PANEL:** 48 port Data patch panel as Siemons or equivalent	No.	6		
E1.08	**CABLE MANAGER:** Provide 1HU cable organizers for patch leads, horizontal cabling etc to approval.	No.	10		

Item	Description	Unit	Qty	Rate (Kshs.)	Cost (Kshs.)
E1.09	APC NetShelter or Giganet 22U wall mounted Server cabinet to approval. Fully loaded c/ w 2 Side Panels vented, perofated front door, rear door hanging Backplate, conduit knockouts,lock and key , cable management trays for active equipment,cable management accessories, mounting provisions..	No	4		
E1.10	APC NetShelter or Giganet Floor standing Black 42 U network cabinet to approval. (800X1000mm) c/ w 2 Side Panels vented, perofated front door, rear door hanging Backplate, conduit knockouts,lock and key , cable management trays for active equipment,cable management accessories, mounting provisions.	No	2		
E1.11	Rack PDUs C13/C14 - with minimum 8 No. switched outlets each c/w neon light. As APC or EATON	No	6		
E1.12	**24 Port Network switches as C9300L-24P-4X Cisco Catalyst 9300 Series** (24 Port Copper) Stackable enterprise switching platform with 24 copper Gigabit Ethernet ports Modular uplink to 10G uplink modules PoE and PoE+ support for powering connected devices Layer 2 and Layer 3 capabilities with advanced security and management features Supports Cisco's Digital Network Architecture (DNA) and SD-Access to Engineer's approval CON-SNT-C9300L2E SNTC-8X5XNBD Catalyst 9300L 24p PoE, Network Essential S9300LUK9-1713 Cisco Catalyst 9300L XE 17.13 UNIVERSAL CAB-C15-CBN Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors C9300L-DNA-E-24 C9300L Cisco DNA Essentials, 24-port license C9300L-DNA-E-24-3Y C9300L Cisco DNA Essentials, 24-port, 3 Year Term license	No	15		
E1.14	Intstallation and configuration of the above Network Switches.	Item	1		

Item	Description	Unit	Qty	Rate (Kshs.)	Cost (Kshs.)
E1.15	**WIRELESS ACCESS POINTS:** Cisco Catalyst 9115AXE Access Point: Indoor environments c/w External antennas to Engineer's approval. CON-SNT-C9120AXE SNTC-8X5XNBD Cisco Catalyst 9120AX Series DNA-A-3Y-C9120 C9120AX Cisco DNA On-Prem Advantage 3Y Term,Trk Lic AIR-DNA-A Wireless Cisco DNA On-Prem Advantage, Term Lic to cover both the network switches and access points AIR-DNA-A-3Y Wireless Cisco DNA On-Prem Advantage, 3Y Term Lic to cover both the network switches and access points AIR-DNA-A-T-3Y Wireless Cisco DNA On-Prem Advantage, 3Y Term, Tracker Lic to cover both the network switches and access points SPACES-EXT-3Y Cisco Spaces Extend for Cisco DNA Advantage to cover both the network switches and access points	No	8		
E1.16	Cabling to each of the Access points from the cabinets as CAT 7 Siemons c/w CAT 7 modules to Engineer's approval.	No	8		
E1.17	Installation and configuration of the above wireless access points	No	6		
E1.18	Printed self-laminated wrap cable markers. These are to be installed on both ends of the cable, and at intervals of 3M along the cable length within the trunking.	Item	1		

Item	Description	Unit	Qty	Rate (Kshs.)	Cost (Kshs.)
E1.19	Termination of data horizontal cables at both ends.	Item	1		
E1.20	HDMI 15m Cabling 18 Gbps bandwidth support 3840*2160 @60Hz High Dynamic Range (HDR) video, dynamic 4K@60Hz , Dolby True HD 7.1 audio and 3D resolution up to 1080P Full HD at 60 Hz. Audio Return Channel (ARC), HDMI Ethernet Channel (HEC) approved.	No.	4		
E1.21	HDMI dual faceplates supporting 18Gps transfer speeds,4K,UHD,3D,48-Bit Deep color and Audio Return Channel.	No.	2		
E1.22	Pulling and installing 8-Core Armoured OM2 Multimode 62.5/125 micron Fibre cable c/w necessary connectors and modules (Subject to site remeasurement)	LM	180		
E1.23	Allow for fixing permanent labels on all the equipment and sockets.	Item	1		
E1.24	**Sub-total c/f to Structured Cabling & Security Price Summary Page**				

F CCTV INSTALLATIONS

The Contractor shall supply labour, carefully disconnect, take stock, relocate and install, fix,connect, test, label and commission the works, clean, complete and working to every detail as described below and in the related specifications and /or on the drawings to the satisfaction ofthe Consulting Engineers.

All cameras to be IP Cameras & to have power over ethernet (POE) capability, 12VDC,24VAC Power options.

All cameras to be complete with bases, brackets, junction boxes, adopters etc where applicable

Technical product catalogues and specifications for quoted models to be attached.The camerasand NVR to be as Hikvision to Engineer's approval.

Manufacturer authorization letters for the proposed systems.

NB: Attach the Private Security Regualatory Authority (PSRA) License as required byPrivate Security Regulation Act, 2016.

CAMERAS & ACCESSORIES

Item	Description	Unit	QTY	Rates (Kshs)	Costs (Kshs)
F1.01	CAMERA MODEL 01 - IP Dome Camera: IP Dome camera c/w Licence and all other accessories as described in the particular specifications of this document ● Indoor Camera ● View Angle - 110 Degrees Minimum ● Resolution - 4MP (2560 x 1440) ● All other properties as described in particular Specification of camera Model	No.	7		
F1.02	**CAMERA MODEL 02 - Bullet Camera**: IP Dome camera c/w Licence and all other accessories as described in the particular specifications of this document ● Indoor Camera ● View Angle - 110 Degrees Minimum ● Resolution - 4MP (2560 x 1440) ● All other properties as described in particular Specification of camera Model	No.	2		

F1.03	**CABLING A:** Horizontal cabling for Cameras wired in 4 pair UTP CAT 6A CU cables as Siemons to Engineer's approval drawn in Conduitwork / trunking installed by others and radiating in a star topology from the Switches in the Administration cabinet to the individual cameras & Including Associated accessories including factory terminated RJ 45 sockets and modules to enable a full operation of the installations.	No.	9		
F1.04	**CABLING B:** Horizontal recabling for existing cameras to the new server room. Cameras wired in 4 pair UTP CAT 6A CU cables as Siemons to Engineer's approval drawn in Conduitwork / trunking installed by others and radiating in a star topology from the Switches in the Administration cabinet to the individual cameras & Including Associated accessories including factory terminated RJ 45 sockets and modules to enable a full operation of the installations.	No.	53		
F1.05	**CAMERA LICENCES:** Camera Licences for all the above IP based Cameras. Please note that the Licences should NOT be annual renewable licenses(**24 Channels package)**	LOT	1		
F1.06	**ADAPTER JUNCTION BOXES**: 100 x 100 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	1		
F1.07	**NVR: 24** Channel CCTV NVR fully licensed, perpetual licenses with fault-tolerant RAID-5 drive arrays with HDD. All cameras shall be recorded at 1920x1080, 15fps, for 180 days. Consider 10% spare capacity, in terms of both camera channel as well as storage when configuring the storage. (bidder to provide the storage calculations).	No.	1		
F1.08	**SYSTEM LICENCE:** To be as HikCentral Professional Web to Engineer's approval.	Item	1		

F1.09	**Extended Network Storage-**Network Video Recorder arrays of 8 TB SATA HDD for upto 30 days storage	No.	1		
F1.10	**ACCESSORIES:** Mounting, fixing, etc accessories such as RJ 45 connectors, fly / interconnect cables, terminations, labling etc.	Item	1		
F1.11	**VIEWER WORKSTATION :** Supplier shall Supply, install, test and commission the Equipment consisting of the following: Type: Tower Memory (RAM): 8GB Processor: Itel core i7 - 560M processor (3M cache) 2.66 GHz GPU: Independent 3D graphics card Graphics Card Memory: 8GB Hard Drive (SSD): 1TB OS: Windows 11 Profesional (64 Bit) Mouse: Optical Mouse Keyboard: Proffered Pro USB Keyboard English (Black) All other parameters as stated in the particular specifications of this document including connection cables, mounting devices, etc. HDMI connector to the monitor	No.	1		
F1.12	Monitor: CCTV display monitor 65'	No	1		
F1.13	**POWER SUPPLY:** Power supply to the various components that need to be powered within the entire CCTV installation and any necessary earthing.	Item	1		
F1.14	**Sub-total c/f to Structured Cabling & Security Price Summary Page**				

G AUDIO VISUAL INSTALLATIONS

- *All installations must be compliant with the digital systems.*
- *Technical product catalogues and specifications for quoted models to be*
- *All Certifications and Warrranties must be provided for by the supplier of*
- *the cable / Equipment at the end of the project.*

All Equipment should be complete with all the required software. The

- *system should be compatible with microsoft teams,google*
- *Any equipment that requires any subscriptions to have* ***a one time subscription***

Meeting Room 1

Item	Description	Unit	QTY	RATE (KSHS.)	COST (KSHS.)
G1.01	All-in-one design video conferencing facilitating one touch access to meetings and quick launch of video conferencing platforms that includes a camera, mics, speakers, and built- in cloud video apps as X 52 Video bar with TC10 controller .The system to include a whiteboard.This should be Polycom to Engineer's approval. C/w; • 2 HDMI Cables,Ethernet cables,AC Power adapter,Wall mount kit • 20MP 4K UltraHD 95-degree FOV camera. • View Angle - 90 Degrees Minimum • AI smart camera technology with pinpoint-accurate automatic framing modes. • Noise canceling technologies. • Should have at least ; 2RJ-45 ports,input for optional expansion microphone,audio input for 3 MEM microphones and 2 second order microphones,1 HDMI in port and 2 HDMI out ports,1 USB Type C and 2 USB Type A of at least 5Gbps signalling rate. Wi-Fi 802.11a/b/g/n/ac (MIMO) • Multi-channel Concurrency & bluetooth connectivity for content sharing and device management. • Should enable content sharing via whiteboarding,HDMI input,Miracast,Apple Airplay etc People video resolution: 4K, 30 fps (TX and RX) from 2048 Kbps; 1080p, 30 fps from 1024 Kbps; 720p, 30 fps from 512 Kbps • Content video resolution (input): UHD(3840 x 2160); HD(1920 x 1080); WSXGA+ (1680 x 1050); UXGA (1600 x 1200); SXGA(1280 x 1024); WXGA(1280 x 768); HD(1280 x 720); XGA(1024 x 768); SVGA(800 x 600) Content video resolution (output): UHD(3840 x 2160); WUXGA(1920 x 1200); HD(1920 x 1080); WSXGA+ (1680 x 1050); SXGA+ (1400 x 1050); SXGA(1280 x 1024); HD(1280 x 720); XGA(1024 x 768) • Should enable integration with Microsoft Exchange and google calendar for managing of meetings directly from the device. • Should have media encryption H.323,SIP.It should also have authenticated access to admin menus,web interface and API,Local account password configuration,security profiles,security defaults,remote logging with support for TLS,BFCP and an active directory external authentication.	No.	1		

G1.02	Meeting room booking system c/w room Scheduling panel with high resolution, POE capabilities, Status Light Kit- Black as Reserva Edge to Engineer's approval. It should be adaptable with both wall and glass mounting options,10/8-inch Scheduling Panel,(Teams-Certified), 1x Power Adapter• 20° tilt mount,3M tape & screwdriver for installation .	No.	1		
G1.03	POE enable IP conference phone with Wi-Fi or Bluetooth capabilities.It should be able to call answer/end, mute, volume up/down, local three-way audio conferencing, DND function, and one-touch speed dial and meeting join.To c/w three MEMS microphones for 360 degree mic pick up, Up to 20 ft/6.1 m, 5" color touch display with noiseblock AI technology.This should be as TRIO C60 to Engineer's approval.	No.	1		
G1.04	Microsoft teams and Zoom Licences.	No.	2		
G1.05	Four-Pairs U/FTP Cable for LAN Systems as **Siemon CAT6A** to Engineer's approval.	No	10		
G1.06	PC : Supplier shall Supply, install, test and commission the Equipment consisting of the following:Memory (RAM): 32GB Processor: Intel core i7 - 560M processor (3M cache) 2.66 GHz GPU: Independent 3D graphics card Graphics Card Memory: 8GB Hard Drive (SSD): 1TB OS: Windows 11 Profesional (64 Bit) Mouse: Optical Mouse HDMI connector This shall be as Asus ZenBook pro 14 Duo Oled to Engineer's approval.	No	1		
G1.07	65 inch smart TV screen as Samsung to Engineer's approval.	No	1		
G1.08	*Any other additional items, please specify below and attach catalogues. (If none write NIL)*				
i)		Item	1		
ii)		Item	1		
iii)		Item	1		
G1.09	**<u>Total for Audio Visual System Meeting Room 1</u>**				

Meeting Room 2					
Item	**Description**	**Unit**	**QTY**	**RATE (KSHS.)**	**COST (KSHS.)**
G1.10	All-in-one design video conferencing facilitating one touch access to meetings and quick launch of video conferencing platforms that includes a camera, mics, speakers, and built- in cloud video apps as X 70 Video bar with TC10 controller .The system to include a whiteboard.This should be Polycom to Engineer's approval. C/w; • 2 HDMI Cables,Ethernet cables,AC Power adapter,Wall mount kit • Dual 4K UltraHD 120-degree FOV camera. • View Angle - 110 Degrees Minimum • AI smart camera technology with pinpoint-accurate automatic framing modes. • Noise canceling technologies. • Wi-Fi 802.11a/b/g/n/ac (MIMO) Multi-channel Concurrency & bluetooth connectivity for content sharing and device management. • Two-way stereo speakers, aluminum cone tweeters,and advanced bass ports. • Should have at least ; 2RJ-45 ports,input for optional expansion microphone,audio input for 3 MEM microphones and 2 second order microphones,1 HDMI in port and 2 HDMI out ports,1 USB Type C and 2 USB Type A of at least 5Gbps signalling rate. • Should enable content sharing via whiteboarding,HDMI input,Miracast,Apple Airplay etc • People video resolution: 4K, 30 fps (TX and RX) from 2048 Kbps; 1080p, 30 fps from 1024 Kbps; 720p, 30 fps from 512 Kbps Content video resolution (input): UHD(3840 x 2160); HD(1920 x 1080); WSXGA+ (1680 x 1050); UXGA (1600 x 1200); SXGA(1280 x 1024); WXGA(1280 x 768); HD(1280 x 720); XGA(1024 x 768); SVGA(800 x 600) Content video resolution (output): UHD(3840 x 2160); WUXGA(1920 x 1200); HD(1920 x 1080); WSXGA+ (1680 x 1050); SXGA+ (1400 x 1050); SXGA(1280 x 1024); HD(1280 x 720); XGA(1024 x 768) • Should enable integration with Microsoft Exchange and google calendar for managing of meetings directly from the device. • Should have media encryption H.323,SIP.It should also have authenticated access to admin menus,web interface and API,Local account password configuration,security profiles,security defaults,remote logging with support for TLS,BFCP and an active directory external authentication.	No.	1		

G1.02	Meeting room booking system c/w room Scheduling panel with high resolution, POE capabilities, Status Light Kit- Black as Reserva Edge to Engineer's approval. It should be adaptable with both wall and glass mounting options,10/8-inch Scheduling Panel,(Teams-Certified), 1x Power Adapter• 20° tilt mount,3M tape & screwdriver for installation .	No.	1		
G1.12	POE enable IP conference phone with Wi-Fi or Bluetooth capabilities.It should be able to call answer/end, mute, volume up/down, local three-way audio conferencing, DND function, and one-touch speed dial and meeting join.To c/w three MEMS microphones for 360 degree mic pick up, Up to 20 ft/6.1 m, 5" color touch display with noiseblock AI technology.This should be as TRIO C60 to Engineer's approval.	No.	1		
G1.13	**IP Ceiling Speaker** •PoE powered ceiling Speaker with Built- in Amplifier •Supports SIP Protocol for flexible integration with VoIP Devices • Should be as as Dante DP 615POE or equivalent • Should be white in colour	No	2		
G1.14	Microsoft teams and Zoom Licences.	No.	2		
G1.15	Four-Pairs U/FTP Cable for LAN Systems as **Siemon CAT6A** to Engineer's approval.	No	10		
G1.16	PC : Supplier shall Supply, install, test and commission the Equipment consisting of the following:Memory (RAM): 32GB Processor: Intel core i7 - 560M processor (3M cache) 2.66 GHz GPU: Independent 3D graphics card Graphics Card Memory: 8GB Hard Drive (SSD): 1TB OS: Windows 11 Profesional (64 Bit) Mouse: Optical Mouse HDMI connector This shall be as Asus ZenBook pro 14 Duo Oled to Engineer's approval.	No	2		
G1.17	85 inch smart TV screen as Samsung to Engineer's approval.	No	1		
G1.18	*Any other additional items, please specify below and attach catalogues. (If none write NIL)*				
i)		Item	1		
ii)		Item	1		
iii)		Item	1		
G1.19	**SubTotal for Audio Visual System Meeting Room 2**				

AUDIO VISUAL SUMMARY PAGE					
G1	Meeting room 01				
G2	Meeting room 02				
G3	Full system Set up, Configuration and Commissioning Staff Training and Handover for both meeting rooms	Item	1		
G4	**Total for Audio Visual System cf to Structured Cabling & Security Price Summary Page**				

H	**ACCESS CONTROL SYSTEM** ***NOTE:*** *The Contractor shall supply labour, carefully disconnect, take stock, relocate and install, fix, connect, test, label and commission the works, clean, complete and working to every detail as described below and in the related specifications and /or on the drawings to the satisfaction of the Consulting* • *All the Equipment must be from a reputable manufacturer* • *Technical product catalogues and specifications for quoted mo* • *All UTP Cables to be as Siemon CAT6A end to end to Engineer's approval* • *Manufacturer authorization letters for the proposed systems to be provided* • *Access controllers specified to be* ***AEOS Access control system*** *NB: Attach the Private Security Regualatory Authority (PSRA) License as required by Private Security Regulation Act, 2016.*

Item	Description	Unit	QTY	Rates (Kshs)	Costs (Kshs)
H1.01	**DOOR CONTROLLER:** Supplier shall Supply, install, test and commission the Equipment consisting of the following: Type: Metal material, Matte spray painting, IP65 Interface Protocol: RS485 interface connected to the attendance workstation and the server Interface: To operate on open supervised device protocol (OSDP) technology. Power Back-up: Comes with a battery, power protection 24 hours Power: Power adapter, 220VAC/12VDC, or ≤15VA All other parameters as stated in the particular specifications of this document including connection cables, mounting devices, etc.				
a	1 Door Controller as ASP-4	No.	2		

Item	Description	Unit	QTY	Rates (Kshs)	Costs (Kshs)
H1.02	**POWER SUPPLY (DX):** Equipment Power Supply Module Box c/w Cabling and Accessories and all other accessories required for complete installation.	No.	2		
H1.03	**BIOMETRIC FINGERPRINT READER WITH CARD READER:** Biometric Fingerprint reader with Card Reader c/w all other accessories as described in the particular specifications of this document. NOTE: This should be programable to different modes of operation as user demands. (Suprema, Morpho integrable with AEOS access control software).	No.	3		
H1.04	**CARD READER (CR):** Proximity card reader without Pinpad c/w all other accessories as described in the particular specifications of this document	No.	10		
H1.05	**REQUEST TO EXIT (RTE) :**Request to Exit switch for all access controled rooms c/w all other accessories as described in the particular specifications of this document	No.	3		
H1.06	**EMERGENCY BREAKGLASS UNIT (BG):** Emergency Break Glass Unit for all access controled rooms c/w all other accessories as described in the particular specifications of this document	No.	3		
H1.07	**DOOR RELEASE KEYSWITCH:** Door release Keyswitch for all access controled rooms c/w all other accessories as described in the particular specifications of this document	No.	3		

Item	Description	Unit	QTY	Rates (Kshs)	Costs (Kshs)
H1.08	**ELECTROMAGNETIC LOCK - ML (MAGLOCK) - SINGLE:** Electromagnetic lock (Maglock) c/w mounting brackets and all other accessories as described in the particular specifications of this document	No.	2		
H1.09	**ELECTROMAGNETIC LOCK - ML (MAGLOCK) - DUAL:** Electromagnetic lock (Maglock) c/w mounting brackets and all other accessories as described in the particular specifications of this document	No.	1		
H1.10	**MAGNETIC DOOR CONTACT (SLIMLINE):** Magnetic Door Contact c/w mounting brackets and all other accessories as described in the particular specifications of this document	No.	3		
H1.11	**CABLING:** Horizontal cabling for Access Contol devices radiating in a star topology from the controllers to individual devices & Including Associated accessories including to enable a full operation of the installations.	No.	2		
H1.12	**CONFIGURATION:** Configuration of the access control doors	Item	1		
H1.13	**LICENSES:** Provide all necessary licenses required	No	2		
H1.14	**ADDITIONAL ACCESSORIES:** Any other accessories that will be required for the complete functional installation of the above systems including cabling.Breakdown of the items should be done on a separate sheet and attached as an appendix to this document. If none indicate "NIL" in Bid.	Item	1		
H1.15	**Sub- Total c/f to Structured Cabling & Security Price Summary Page**				

TRUCTURED CABLING & SECURITY PRICE SUMMARY PAGE

ITEM	DESCRIPTION	COST (Kshs.)
1.01	Preliminaries & General conditions	
1.02	Structured Cabling	
1.02	CCTV Installations	
1.03	Access Control Installations	
1.04	Audio Visual System	
1.05	Allow sum for liaising with the building management for any necessary attendance and / inquiries	
1.06	Allow sum for demolitions and relocation costs of server room equipment / existing services.	
1.07	Sum for Completion documents: Comprising workshop drawings, manufacturer's technical product catalogues, users manuals, maintenance manuals, as installed drawings, test certificates, etc.	
1.08	Sum for Testing and commissioning of the entire installations set complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	
1.09	Sum for Training of client personel / users (At least 5No. Users)	
1.1	**Total for STRUCTURED CABLING & SECURITY EXCLUSIVE OF VAT**	
1.11	**ADD** 16%VAT	
1.12	**Total for STRUCTURED CABLING & SECURITY INCLUSIVE OF VAT**	

Total amount in words: Kshs_____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.:_____V.A.T. Reg. No. : _____

Signed by:_____Date _____

SCHEDULE 7

LIFT INSTALLATION WORKS

SCHEDULE No. 1A: LIFT SPECIFIC DETAILS

NOTE: To be read in Conjunction with the Particular Specifications

A Engineers Specifications

ITEM	DESCRIPTION	LIFT DETAILS
A1	***GENERAL SPECIFICATIONS***	
a1.01	**Lift Nomenclature**	Conventional
a1.02	**Type of Lift**	Platform lift
a1.03	**Special Requirements**	Normal
a1.04	**No Of Lifts**	1 No.
a1.05	**Capacity (Occupancy)**	1+1Pax
a1.06	**Capacity (Weight)**	300Kgs
a1.07	**Travel (m)**	4m
a1.08	**No. of Stops / openings (Installed)**	1Landing
a1.09	**No. of Stops / openings (Configured)**	1 Stop
A2	***DRIVE SPECIFICATIONS***	
a2.01	**Drive (Motor) System**	Machine Roomless
a2.02	**Engine Type**	VVVF
a2.03	**Speed (m/s) - Minimum**	0.1m/s
a2.04	**Acceleration (m/s) - Min**	
A3	***SHAFT SPECIFICATIONS***	
a3.01	**Shaft Dimensions**	ESTIMATED SINGLE SHAFT DIMMENSIONS
		W = 1400mm
		D = 2130mm
a3.02	**Pit Depth**	-
A4	***CABIN SPECIFICATIONS***	
a4.01	**Car (Cabin) Access**	1No. Access
a4.02	**Car (Cabin) Height**	
a4.03	**Car (Cabin) Height - Internal Clear**	2,150

ITEM	DESCRIPTION	LIFT DETAILS
a4.04	**Car Fit-Out Decoration Allowance**	Factory Fitted
a4.05	**Car Floor Finish Allowance**	Factory Fitted

A5 DOOR SPECIFICATIONS

A5.03	**Door Opening Required (Minimum)**	W = 900mm
		H = 1100mm

A6 LANDING OPERATING PANEL

a6.01	**Finish on Buttons**	Stainless Steel
a6.02	**Braille Input on Buttons**	Required
a6.03	**Buttons Illumination**	Required

A7 OPERATION FUNCTIONS

a7.01	**Automatic Power Off in Idle Mode**	Required
a7.02	**Car Call Cancellation**	Required
a7.03	**Attendant Service / Manual Operation**	Required
a7.04	**Air pressure control system**	Not Required

A8 SAFETY FUNCTIONS

a8.01	**Counter-weight Safety Gear**	Not Required
a8.02	**Door light curtain protection/Sensor**	Required
a8.03	**Cabin Emergency Light**	Required
a8.04	**Emergency Power Operation**	Required
a8.05	**Emergency alarm function**	Required

B1 Bidders Specific Particulars for model (MUST Be Filled By Bidder)

ITEM	DESCRIPTION	LIFT DETAILS
b1.01	**Lift Model**	
b1.02	**Lift Code**	
b1.03	**Proposed Shaft Dimensions (mm)**	W =
		D =
b1.04	**Car Cabin Dimmensions (mm)**	W =
		D =
		H =
b1.05	**Pit Depth (mm)**	
b1.06	**Machine room Height (From Last slab)**	
b1.07	**Power Rating (KW):For Each Lift**	
b1.08	**Voltage Range (V)**	
b1.09	**Starting Current (A) - For Each Lift**	
b1.10	**Operating Current (A) - For Each Lift**	
b1.11	**Power Factor**	

LIFT INSTALLATIONS

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the works, clean, complete and working to every detail as described below and in the related specifications and /or on the drawings to the satisfaction of the Consulting Engineers.

Technical product catalogues and specifications for quoted models to be attached

NOTES: Please note that the Lifts shall be:

1. Lifts including doors (Car & Landing) shall be Electrically driven & electronically controlled via AC variable voltage with full length infrared sensor for the door as described.

2. Lifts shall have Variable voltage variable frequency geared machine designed such as to give fully regulated landing approach

3. All Lifts to come complete with their computer control equipment, hoists and counter-weights.

4. Car to be complete with hoistway doors & entrances, necessary control and power cables,

5. Car to be complete with installations materials and all accessories and complying with the specification

6. The imported and local components to be apportioned in pricing as outlined in the schedules.

7. Passenger standing on any floor will have the benefit of viewing on the display the movement and position of the lift .

8. All lifts to come with the Detachable canvas for Protection. Canvas should have factory fabricated provision for hooking canvas. (Lift Hooks shall be as DOT Studs Mechanically fixed with bolts & nuts)

9. Lift to come factory fitted with own power factor correction [PFC] to 0.98 or better.

10. Lift to have its own automatic voltage stabilizer and Transcient voltage surge suppression circuitry.

11. All lifts above 3m/s (Both Car & Hoistway) shall be incorporated with designs to Mitigate Air Pressure Effects / Imbalance

LIFT SCHEDULES

The below lift to be a stainless steel platform lift of 0.1m/s speed and duty load of 300kg with maximum traveldistance of 4m.Shaft width 1400mm and depth 0f 2130mm.The lift to c/w remote control,10m radius control.

A1	PLATFORM LIFT				
ITEM	**DESCRIPTION**	**UNIT**	**QTY**	**RATES (Kshs.)**	**COSTS (Kshs)**
a1.01	**Hoist Materials (FOB)**- FOB Cost of lift Hoist materials at country of origin [As per the particular Specifications] i.e. Imported component	No.	1		
a1.02	**Hoist Materials (Freight)** - Insuarance and Freight Cost i.e. Landed cost without duties and taxes [As per the particular Specifications] i.e. Imported component	No.	1		
a1.03	**Car Structure Materials (FOB)**- FOB Cost of lift Hoist materials at country of origin [As per the particular Specifications] i.e. Imported component	No.	1		
a1.04	**Car Structure Materials (Freight)** - Insuarance and Freight Cost i.e. Landed cost without duties and taxes [As per the particular Specifications] i.e. Imported component	No.	1		
a1.05	**Car Finishes Materials (FOB)**- FOB Cost of lift Hoist materials at country of origin [As per the particular Specifications] i.e. Imported component	No.	1		
a1.06	**Car Finishes Materials (Freight)** - Insuarance and Freight Cost i.e. Landed cost without duties and taxes [As per the particular Specifications] i.e. Imported component	No.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATES (Kshs.)	COSTS (Kshs)
a1.07	**Import Duty:** Price for import duty on all imported materials (i.e. Local Component)	No.	1		
a1.08	**Insuarance & Clearance:** Cost of Marine insurance, clearing and handling charges, inland transportation and off-loading at site, and all other local costs (i.e. local component)	No.	1		
a1.09	**Local Materials:** Cost of lift materials purchased locally and delivered to site (i.e. local component)	No.	1		
a1.10	**Installation & Commissioning:** Sum for Installation, testing and commissioning (i.e. local component on labour & Expertise cost).	No.	1		
a1.11	**Automatic Emergency Landing Device:** Transient safe landing device to stop the lift & move it to the next landing in event of a fault or power outage.	No.	1		
a1.12	**Lift Saftey Equipment:** PFC & transcient Protection Devices to protect the lift equipment from voltage surge, sags, swells, swings & spikes. This is to be incorporated in Lift and should be factory fitted. To be part of the shop drgs submited.	No.	1		
a1.13	**AVS:** Automatic Voltage stabilizer for the lift(s) with a range of ± 15% Minimum to cater for any Over / Under Voltages within the power system for the building. To be part of the shop drgs submited.	No.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATES (Kshs.)	COSTS (Kshs)
a1.14	**ADDITIONS:** Any other equipment or work necessary for the satisfactory completion of the sub-contract works. List on a separte sheet showing the various items and their individual costs only give lumpsum here (If none, write NIL)	Item	1		
a1.15	**ATTENDANCE:** Allow sum for attendance to other specialists e.g. Electrical, Building management, etc.	Item	1		
a1.16	**DOCUMENTATION:** Sum for Completion documents: Comprising Workshop drawings, manufacturer's technical product catalogues, users manuals, maintenance manuals, as installed drawings, test certificates, etc. **{ NOTE: Penultimate Valuation will not be paid until these are fully availed & signed off by the engineer }**	Item	1		
a1.17	**TRAINING:** Sum for Training of client personel / users (At least 5No Staff for 1Week)	Item	1		
a1.18	**DLP SUM:** Sum for 6 months comprehensive maintenance from date of practical completion i.e. for maintainance and replacement of consumables such as blown out devices	Item	1		
a1.19	Preliminaries and General Conditions	Item	1		
a1.20	**Total Exclusive of VAT**				**-**
a1.21	**Add 16% VAT**				**-**
a1.22	**Total Inclusive of VAT**				**-**

Total amount in words: Kshs _____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.: _____ V.A.T. Reg. No. : _____

Signed by: _____ Date _____

SCHEDULE 8

HVAC

(AIR CONDITIONING INSTALLATIONS AND MECHANICAL VENTILLATION)

Air Conditioning Installations-AC Sum-Kengen

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the works, clean, complete and working to every detail as described in the specification and by related specificationsand on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

1.00 ***UPPER FLOOR***

ITEM	DESCRIPTION	Unit	QTY	RATE (Kshs)	COST (KSH)
1.01	**AIR COOLING UNIT - Condenser** Multisplit Condensing unit of total **cooling capacity only** 128kW. The unit **Must** be in module of RXQ46ARY1 as Daikin or equal and apprved. The units **Must** be such that any of the combination module can act as the **master** and non is purely **slave**	set	1		
	Indoor Units				
1.02	14Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ125PBV36 Complete with remote controls Key pad or equal and approved	No.	5		
1.03	11.2Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ100PBV36 Complete with remote controls Key pad or equal and approved	No.	1		

1.04	9Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ80PBV36 Complete with remote controls Key pad or equal and approved	No.	1		

1.05	5.6Kw Ductable concealed slim type evaporator (indoor Daikin Cat no. FXMQ50PBV36 Complete with remote controls Key pad or equal and approved	No.	2		
1.06	4.5Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ40PBV36 Complete with remote controls Key pad or equal and approved	No.	2		
1.07	3.6Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ32PAVE Complete with remote controls Key pad or equal and approved	No.	5		
1.08	**Supply difusers** 600x600mm Aluminium **Perforated** Powder coated Diffusers with circular grid supply diffuser complete with adapter box to connect to 300mm flexible duct including connectors.	No.	14		
1.09	**Return difusers -Type 1** 600x600mm Aluminium **Perforated** Powder coated Diffusers with circular grid supply diffuser complete with duct connectors.	No.	14		
1.1	**Linear Supply difusers:**1200x150mm Aluminium Linear Powder coated Diffusers with flow rate of 100 lts/sec each . To be as Tecnalco or equal and approved.	No.	9		

1.11	**Linear return difusers:**1200x150mm Aluminium Linear Powder coated Diffusers with flow rate of 100 lts/sec each . To be as Tecnalco or equal and approved.	No.	9		
1.12	600x600x600mm Galvanised mild steel Adaptor box insulated with Mineral wool	No.	32		
1.13	300mm flexible duct Complete with Fibre glass isulation and lined with aluminiun foil.	Lm	32		
1.14	**Ductwork** Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint. The duct shall be Complete with 100mm Fibre glass isulation and lined with aluminiun foil.	M^2	15		
1.15	**Pre Insulated Ducts** Polysocianate board/ rigid phenolic insulated panels faced by an aluminium foil on both the side c/w with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories.	M^2	90		
1.16	Refrigerant R410a Charging	Item	1		

1.17	Allow for the Refrigeration pipework complete with pipe insulation, connection kits, Headers, and T-connections and gms sheet cladding anchored firmly as per schedule below(r**efer also to the attach analysis sheet using Toshiba program if there are descrepances due other models analysis program or any other reason, please attached a corrected appendix otherwise any cost which may arise due to this shall be borne by the contractor)**				
	Pipework				
a	6.4mm	LM	36		
b	9.5mm	LM	65		
c	12.7mm	LM	41		
d	15.9mm	LM	73		
e	19.1mm	LM	40		
f	22.2mm	LM	17		
g	28.6mm	LM	20		
h	34.9mm	LM	26		
i	41.3mm	LM	13		
1.18	**Header/branch pieces**				
a	Toshiba model RMB-BT24E or equivalent	No.	2		
b	Toshiba model RMB-BY205E or equivalent	No.	4		
c	Toshiba model RMB-BY105E or equivalent	No.	5		
d	Toshiba model RMB-BY305E or equivalent	No.	5		
e	Toshiba model RMB-BY55E or equivalent	No.	5		
f	41mm Shut valves	No.	3		

g	25mm drainage pipework complete with pipe insulation anchored firmly	LM	50		
1.19	Mounting Brackets for the above out door units	No.	4		
1.2	Allow for the electrical connections including protections and isolators to power supplied at least 2m from any units by others for both outdoor and indoor units	Item	1		
1.21	**Anti-Vibration mountings:** The unit and the fans shall be in installed on anti-vibration mountings so as to isolate vibration from the building structures.	Item	2		
1.22	FRESH air Fan Duct mounted Fresh air fan of diameter 400mm with a flow rate of 500L/s against a head of 100N/m. the fan shall be complete with Silencer, front cover, remote control switch and self libricating concealed water tight motor and Complete with filters for fresh air. The fan shall be as Expelair, Manrose or equal and approved	No.	1		
1.23	FRESH air Fan Duct mounted Fresh air fan of diameter 400mm with a flow rate of 300L/s against a head of 100N/m. the fan shall be complete with Silencer, front cover, remote control switch and self libricating concealed water tight motor and Complete with filters for fresh air. The fan shall be as Expelair, Manrose or equal and approved	No.	1		
1.24	1800mm air curtain	No.	1		
1.25	20 Litres dehumidifiers as carrier or equivalent	No.	2		

1.26	**Surge protector** Power surge protector as SOLATEC to suite	No.	16		
1.27	Sum for Hoisting/Lowering of outdoor units to the roof	item	1		
1.28	Control /network cable 4x1mm2 Shielded cable	item	1		
1.29	**Total For Central Air Conditioning without VAT c/f to price summary page**				

Air Conditioning Installations-AC Sum-Kengen

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commission the works, clean, complete and working to every detail as described in the specification and by related specifications and on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

2.00 ***LOWER FLOOR***

ITEM	DESCRIPTION	Unit	QTY	RATE (Kshs)	COST (KSH)
2.01	**AIR COOLING UNIT- Condenser** Multisplit Condensing unit of total **cooling capacity only** 140kW. The unit **Must** be in module of RXQ50ARY1 as Daikin or equal and approved. The units **Must** be such that any of the combination module can act as the **master** and non is purely **slave**	set	1		
	Indoor Units				
2.02	11.2Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ100PBV36 Complete with remote controls Key pad or equal and approved	No.	6		
2.03	9Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ80PBV36 Complete with remote controls Key pad or equal and approved	No.	6		
2.04	7.1Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ63PBV36 Complete with remote controls Key pad or equal and approved	No.	4		
2.05	4.5Kw Ductable concealed slim type evaporator (indoor unit) Daikin Cat no. FXMQ40PBV36 Complete with remote controls Key pad or equal and approved	No.	6		

2.06	**Supply difusers** 600x600mm Aluminium **Perforated** Powder coated Diffusers with circular grid supply diffuser complete with adapter box to connect to 300mm flexible duct including connectors.	No.	38		
2.07	**Return difusers -Type 1** 600x600mm Aluminium **Perforated** Powder coated Diffusers with circular grid supply diffuser complete with duct connectors.	No.	38		
2.08	**Linear Supply difusers:**1200x150mm Aluminium Linear Powder coated Diffusers with flow rate of 100 lts/sec each . To be as Tecnalco or equal and approved.	No.	0		
2.09	**Linear return difusers:**1200x150mm Aluminium Linear Powder coated Diffusers with flow rate of 100 lts/sec each . To be as Tecnalco or equal and approved.	No.	0		
2.1	600x600x600mm Galvanised mild steel Adaptor box insulated with Mineral wool	No.	44		
2.11	300mm flexible duct Complete with Fibre glass isulation and lined with aluminiun foil.	Lm	44		
2.12	**Ductwork** Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint. The duct shall be Complete with 100mm Fibre glass isulation and lined with aluminiun foil.	M^2	10		

2.13	**Pre Insulated Ducts** Polysocianate board/ rigid phenolic insulated panels faced by an aluminium foil on both the side c/w with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories.	M^2	90		
2.14	Refrigerant R410a Charging	Item	1		
2.15	Allow for the Refrigeration pipework complete with pipe insulation, connection kits, Headers, and T-connections and gms sheet cladding anchored firmly as per schedule below(r**efer also to the attach analysis sheet using Toshiba program if there are descrepances due other models analysis program or any other reason, please attached a corrected appendix otherwise any cost which may arise due to this shall be borne by the contractor)**				
	Pipework				
a	6.4mm	LM	13		
b	9.5mm	LM	74		
c	12.7mm	LM	26		
d	15.9mm	LM	90		
e	19.1mm	LM	33		
f	22.2mm	LM	15		
g	28.6mm	LM	19		
h	34.9mm	LM	20		
i	41.3mm	LM	15		
2.16	**Header/branch pieces**				
a	Toshiba model RMB-BT24E or equivalent	No.	4		
b	Toshiba model RMB-BY205E or equivalent	No.	6		

c	Toshiba model RMB-BY105E or equivalent	No.	8		
d	Toshiba model RMB-BY305E or equivalent	No.	5		
e	Toshiba model RMB-BY55E or equivalent	No.	3		
f	41mm Shut valves	No.	3		
g	25mm drainage pipework complete with pipe insulation anchored firmly	LM	55		
2.17	Mounting Brackets for the above out door units	No.	4		
2.18	Allow for the electrical connections including protections and isolators to power supplied at least 2m from any units by others for both outdoor and indoor units	Item	1		
2.19	**Anti-Vibration mountings:** The unit and the fans shall be in installed on anti- vibration mountings so as to isolate vibration from the building structures.	Item	2		
2.2	FRESH air Fan Duct mounted Fresh air fan of diameter 400mm with a flow rate of 400L/s against a head of 100N/m. the fan shall be complete with Silencer, front cover, remote control switch and self libricating concealed water tight motor and Complete with filters for fresh air. The fan shall be as Expelair, Manrose or equal and approved	No.	1		
2.21	FRESH air Fan Duct mounted Fresh air fan of diameter 400mm with a flow rate of 400L/s against a head of 100N/m. the fan shall be complete with Silencer, front cover, remote control switch and self libricating concealed water tight motor and Complete with filters for fresh air. The fan shall be as Expelair, Manrose or equal and approved	No.	1		

2.22	1800mm air curtain	No.	0		
2.23	20 Litres dehumidifiers as carrier or equivalent	No.	2		
2.24	**Surge protector** Power surge protector as SOLATEC to suite	No.	22		
2.25	Sum for Hoisting/Lowering of outdoor units to the roof	item	1		
2.26	Control /network cable 4x1mm2 Shielded cable	item	1		
2.27	**Total For Central Air Conditioning without VAT c/f to price summary page**				

Air Conditioning Installations - Server Room-AC Sum-Kengen

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label andcommission the works, clean, complete and working to every detail as described in the specification and by related specifications and on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

3.00 ***SERVER ROOM***

ITEM	DESCRIPTION	Unit	QTY	RATE (Kshs)	COST (KSH)
3.01	**AIR COOLING UNIT (24,000 BTU)** Convertible Type Split System (wall mounted or console) air cooling unit of capacity 7.1kw as "Carrier" 38GL 024 and condensing unit as 38YL 024 or equal and approved. The unit shall be supplied complete with room thermometer, room thermostat and controls or remoted control device.the unit shall be such that if the power supply goes off, it will restart automatically after power is restored. Other models, which are acceptable, are Daikin or equal and eqiuvalent	Item	2		
3.02	**Allow for refrigerant pipework complete with lagging** **1/2“ refrigerant pipes and lagging (gas line)**	Item	1		
3.03	Refrigerant pipe trunking where they are exposed	Item	1		
3.04	R410 Refrigerant	Item	1		
3.05	**Drain** 20mm class ‘B’ GMS pipe complete with fittings	Lm	30		
3.06	**ELECTRICAL** Allow for associated Electrical works from the isolator to the A/C and from indoor unit to outdoor unit.	No.	1		

3.07	**Surge protector** Power surge protector as SOLATEC to suite	No.	2		
3.08	**Mounting bracket** Mounting bracket for the outdoor units to suite	No.	2		
3.09	Contorl /network cable 4x1mm2 Shielded cable	item	1		
3.10	**Total For server room without VAT c/f to price summary page**				

4.00 Mechanical Ventilation-AC Sum-Kengen

The Contractor shall supply labour and supply, deliver, install, fix, connect, test, label and commissionthe works, clean, complete and working to every detail as described in the specification and by relatedspecifications and on the drawings listed in the Schedule or Drawings to the satisfaction of the Consulting Engineers.

4.10 ***Toilets***

ITEM	DESCRIPTION	Unit	QTY	RATE (Kshs)	COST (KSH)
4.11	Etract air fan Duct mounted Exhaust air fan of flow rate of 200L/s against a head of 30N/m. the fan shall be complete with front cover, remote control switch and self libricating concealed water tight motor and 5 meters 150mm flexible duct with all the clip etc. The fan shall be as Expelair, Manrose or equal and approved	No.	4		
4.12	Etract air fan Duct mounted Exhaust air fan of flow rate of 150L/s against a head of 30N/m. the fan shall be complete with front cover, remote control switch and self libricating concealed water tight motor and 5 meters 150mm flexible duct with all the clip etc. The fan shall be as Expelair, Manrose or equal and approved	No.	3		
4.13	Air disc valves 150mm-anodised Vent	No.	35		
4.14	Air Extract as 200x200mm Louvre	No.	8		
4.15	**Ductwork** Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint. The duct shall be Complete with 100mm Fibre glass isulation and lined with aluminiun foil.	M^2	70		
4.16	Contorl /network cable 4x1mm2 Shielded cable	Item	1		
4.17	**Total For Toilet Mechanical Ventilation without VAT**				

4.20 ***Storage***

ITEM	DESCRIPTION	Unit	QTY	RATE (Kshs)	COST (KSH)
4.21	Etract air fan Duct mounted Exhaust air fan of flow rate of 300L/s against a head of 30N/m. the fan shall be complete with front cover, remote control switch and self libricating concealed water tight motor and 5 meters 150mm flexible duct with all the clip etc. The fan shall be as Expelair, Manrose or equal and approved	No.	1		
4.22	Exhaust air grilles 150mm-anodised Vent	No.	6		
4.23	Air Extract as 200x200mm Louvre	No.	1		
4.24	**Ductwork** Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint. The duct shall be Complete with 100mm Fibre glass isulation and lined with aluminiun foil.	M^2	20		
4.25	Contorl /network cable 4x1mm2 Shielded cable	Item	1		
4.26	**Total For Storage Mechanical Ventilation without VAT**				
4.00	**Total For Mechanical Ventilation without VAT**				

AIR CONDITION AND MECHANICAL VENTILATION PRICE SUMMARY PAGE

ITEM	DESCRIPTION	TOTAL (KSHS.)
0	Preliminaries and General Conditions	
1	Central Air Conditioning Installations Upper Ground	
2	Central Air Conditioning Installations Lower Ground	
3	Central Air Conditioning Installations Server	
4	Mechanical Ventilation	
5	Relocation of existing outdoor units	
6	Sum for Completion documents: Comprising workshop drawings, manufacturer's technical product catalogues, users manuals, maintenance manuals, as installed drawings, test certificates, etc.{***NOTE: Penultimate Valuation will not be paid until these are fully availed & signed off by the engineer*** }	
7	Sum for training of client / user (At least 5 No. Users)	
8	Sum for testing, system configuration & commissioning of the entire installations set complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	
9	**Total Without VAT**	
10	**Add:** 16% VAT	
11	**Total With VAT**	

Total amount in words: Kenya shillings_____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.:_____V.A.T. Reg. No. : _____

Signed by:_____Date _____

SCHEDULE 9

PLUMBING & DRAINAGE AND FIREFIGHTING

(SANITARY FITTINGS, INTERNAL PLUMBING WORKS, INTERNAL DRAINAGE WORKS AND PORTABLE FIRE EXTINGUISHER)

PLUMBING & DRAINAGE AND FIREFIGHTING

1.00 Sanitary Fittings

Supply, deliver and fix the following sanitary fittings including all materials and jointings to supply, waste and overflow pipe fittings:-Note all sanitary fittings are coloured to project architect specific colour.

Item	Description	Units	Qty	Rates (Kshs.)	Costs (Kshs)
1.01	**WC Suites** Duravit D-Code -Wall hang WC Pan (white in colour) Model-No.011301,Dimension 395 x 735mm complete with concealed cistern with top dual flush Accessory are toilet seat and cover with softclose closure, hinges stainless steel Model No. 0067310000 with all fixing included. Flexible bend connector, angle valves and any other necessary accessories.	No.	8		
1.02	**Disabled suite** Water closet pan concealed cistern as Duravit. Value Pack with white grab rails cat no. PK8184WH horizontal outlet. Doc.M value cistern, fittings and standard lever, Doc.M seat ring,stainless steel hinge,Hand rinse (Wash hand Basin) with no overflow, no chainstay ,Spray mixer, lever operated mixing valve - thermostatic TMV3 . Doc.M support rail (5 required). Doc.M hinged support rail and toilet roll holder. Wall hangers(pair), Grid waste, pan fixings, cistern cover clips, P trap outlet connector Cat.No WF1240WH.	No.	1		
1.03	**Toilet roll holder:** Duravit D-Code toilet roll holder cat no. 0099021000	No.	8		
1.04	**Toilet brush holder:** Duravit D-Code toilet roll holder cat no. 0099021000	No.	8		

1.05	**Wash hand basin:** Duravit Dcode wall mounted WHB, Dimension 400mm, complete with half pedestal and Electronic Wash Hand Basin Taps: Infra-red sensor enabled chromeplated handle tap, AC and DC operated as Docol or Kohler. Chrome plated complete with pop up waste, 1¼mm chrome plated waste fittings, chrome plated bottle trap 1¼" P trap and the angle valves.	No.	10		
1.06	**LACTATION SINK:** Single Bowl Single Drainer countertop Stainless Steel kitchen sink as Duravit c/w chrome plated 1½" chrome plated bottle trap, 40mm chrome plated chain waste fitting(unslotted) cat. No WF 4343 CP and swivel pillar type kitchen sink mixer as Focus E 31780, -000 tap, angle valves and all the other accessories.	No.	1		
1.07	**Towel rail :** Chrome plated towel rail as Duravit, or Equivalent and approved	No.	2		
1.08	**Mirror:**1200 x 600mm silver plated plain glass mirror with bevelled edges and fixed with chrome plated screws and dome shaped cover.	No.	10		
1.09	**Coat Hooks:** Duravit D-Code coat hooks holder cat no. 0099021020	No.	8		
1.10	**Soap dispenser:** Press type Liquid soap dispenser made out of enamel coat mild steel or stainless as Mediclinic or Equal and approved	No.	5		
1.11	**Hand driers:** No Touch Vandal Resistance Automatic Hand drier as Mediclinic	No.	5		

1.12	**Urinal bowl:** urinal bowls as Duravit D - Code concealed inlet with jet nozzle cat no. 08293000007 model with fly, complete with dividers, 40mm Chrome plated hinged domed outlet grating, 40mm chrome plated urinal P-trap, Complete with both Electronic Sensor and batteries, Flush Valve tap, angle valves, chrome plated complete waste, 1¼mm chrome plated waste fittings, chrome plated bottle trap 1¼" P trap or Equal and approved,	No.	6		
1.13	**Kitchen sink:** Single bowl double drainer countertop Stainless Steel kitchen sink as Duravit c/w chrome plated 1½" chrome plated bottle trap, 40mm chrome plated chain waste fitting(unslotted) cat. No WF 4343 CP and swivel pillar type kitchen sink mixer as Focus E 31780, -000 tap, angle valves and all the other accessories.	No	3		
1.14	**Utility sink** Utility basin without oveflow, without tap platform,with grid chrome dimensions of 480x425mm Model No. 031348..00 (white in colour) and all accessory as grid,chrome,fixing Model No. 0050011000.nclude gwith grating cat No. FC1034WH, angle valves, Bib tap as tapis or docol and all necessary accessories.	No	3		
1.15	**Sanitary bins** Integral anti-bacterial technology as Mediclinic or equal and approved	No	2		
1.16	**No touch hand sanitizers** Wall-Mounted With a smart infrared sensor. Dispenser Refillable Bottle Tank. 1200ml capacity as Mediclinic or equal and approved	No	4		

1.17	**Kitchen undersink water heater** Instantaneous heater of capacity 10 litres and rating 3kw complete with adjustable thermostat, 40'C temperature lock,standard spout and valve, taps, mixer,angle valves and any other necessary accessories as Heatrae sadia streamline 95:010:187	No	2		
1.18	**Electronic air fresheners:** Automatic air freshener dispensing system and odour neutralizing to control an area more than 800 cuft refills lasting upto 100days, with proactive display to indicate refill or batteries need replacement All as Pulse II aerosol or as mediclinic dispenser with timer & sensor.	**No**	5		
1.19	**Total for sanitary fittings c/f to price summary page**				

2.00 Internal Plumbing Works

Supply, deliver and fix the following in PPR-C (Polypropylene Random Copolymer) iternal water pipework systems with fittings fixed and welding to be in accordance to the manufacturer's printed instructions as described. All PPR-C bends,Tees,reducing Tees,reducers etc. are to be formed in accordance to the manufacturer's printed instructions. The installations to have the various sizes of connectors, adaptors, sockets, reducers holdbats, clips etc. as required for satisfactory functions. NOTE: The pipe diameters givenare internal dimensions.

Item	Description	Units	Qty	Rates (Kshs.)	Costs (Kshs)
2.01	15mm bore water pipes	Lm	3		
2.02	20mm Ditto	Lm	10		
2.03	25mm Ditto	Lm	30		
2.04	32mm Ditto	Lm	50		
2.05	15mm Bends and Elbows	No	2		
2.06	20mm Ditto	No	6		
2.07	25mm Ditto	No	15		
2.08	32mm Ditto	No	18		
2.09	32mm Tees	No	4		
2.1	25mm Ditto	No	10		
2.11	20mm Ditto	No	3		
2.12	15mm Ditto	No	2		
2.13	32x25mm Ditto	No	2		
2.14	25x20mm Ditto	No	4		
2.15	25x15mm Ditto	No	4		
2.16	20x15mm Ditto	No	4		

2.17	32mm Gate valves as peglar	No	2		
2.18	25mm Gate valves as peglar	No	2		
2.19	15mm x 300mm long flexible connector complete with chrome plated stop cocks.	No	8		
2.2	32mm Water Meter	No	1		
2.21	Allow for connection to the water supply to the existing water point	Item	1		
2.22	**Total for Internal Plumbing works c/f to price summary page**				

3.00 Internal Drainage works - Supply and install

Supply, deliver and fix the following in UPVC soil and waste systems to BS 4514 and 5225 with fittings fixed in accordance to the manufacturer's printed instructions and BS 5572 and manufactured by "KEY TERRAIN" as described.All UPVC branches,Tees,reducing Tees,reducers etc. are to be formed in accordance to the manufacturer's printed instruction. The installations to have the various sizes of connectors, adaptors,sockets,reducers holdbats, clips etc. as required for satisfactory functioning.

Item	Description	Units	Qty	Rates (KSH)	Costs (KSH)
3.01	100mm heavy duty grey pipes	LM	28		
3.02	50mm heavy duty waste pipes	No.	15		
3.03	40mm ditto	No.	22		
3.04	100mm Access bend	No.	5		
3.05	100mm Sweep bend	No.	5		
3.06	50mm ditto	No.	6		
3.07	40mm ditto	No.	4		
3.08	100mm single Upvc Tee	No.	2		
3.09	50mm ditto	No.	4		
3.10	40mm ditto	No.	1		
3.11	50mm inspection plug	No.	1		
3.12	40mm ditto	No.	3		
3.13	50x100mm boss conector	No.	2		
3.14	40x100mm boss conector	No.	5		

3.15	40x50mm ditto	No.	1		
3.16	100mm diameter Vent cowl and Weathering slate to suite 100mm pvc pipe	No.	1		
3.17	**Sub Total For internal drainage c/f to price summary page.**				

4.00 Portable Fire Extinguisher

Supply, deliver and install the following fire fighting equipment (stored in vandal proof protective cabinets) manufactured to BS EN3 and are in themselves something of established standard for quality around the world.

Item	Description	Units	Qty	Rates (Kshs.)	Costs (Kshs)
4.01	4.5kg CO_2 gas Fire Extinguisher	No	4		
4.02	10 kg suspended ABC Automatic fire extingusher with 68c Sprinkler, safety cover.	No	1		
4.03	9 Kg DCP Fire Extinguisher	No	4		
4.04	Elide Fire Balls c/w mounting brackets	No	4		
4.05	9lts Water Fire Extinguisher	No	4		
4.06	Fire blanket of (1m*1m)	No	2		
4.07	Fire Hose Reel Cabinet	No	2		
4.08	**Total for portable Fire Extinguishers c/f to price summary page**				

5.00 Price Summary Page

Item	Description	Costs (KSH)	
1	Sanitary Fittings		
2	Plumbing works		
3	Internal drainage		
4	Fire fighting portables		
5	Liquified Petroleum Gas Sleeve		
6	Decommisioning of sprinkler system		
7	Sum for Completion documents: Comprising workshop drawings, manufacturer's technical product catalogues, users manuals, maintenance manuals, as installed drawings, test certificates, etc.**{ NOTE: Penultimate Valuation will not be paid until these are fully availed & signed off by the engineer }**		
8	Sum for Training of client personel / users (At least 5No Staff)		
9	**Total for Mechanical Installations exclusive of VAT c/f to form of tender**		
10	**Add 16% VAT**		
11	**Total for Mechanical Installations exclusive of VAT c/f to form of tender**		

Total amount in words: Kenya shillings_____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.:_____V.A.T. Reg. No. : _____

Signed by:_____Date _____

PROVISIONAL SUMS

ITEM	DESCRIPTION	UNIT	RATE KSHS	AMOUNT KSHS
	BILL NO 7			
	PROVISIONAL SUMS			
	The following provisional items are to be measured on completion of the works and priced in accordance with rates contained in these Bills of Quantities or pro-rata thereto or deducted in whole if not required			
	Structural Electromagnetic Ferroscan Tests			
A	Allow a provisional sum of Kenya Shillings One Hundred and Fifty Thousand, (KSh 150,000.00) only for Structural Electromagnetic Ferroscan Tests.	SUM		150,000.00
	Signage & Branding			
B	Allow a provisional sum of Kenya Shillings Six Hundred Thousand, (KSh 600,000.00) only for Signage	SUM		600,000.00
	PROJECT MANAGEMENT EXPENSES			
C	Allow the following for Project Management Expensesi			
	Pre Tender Site visit samples			25,000.00
	ii Clerk of Works Site Laptop and Printer (specifications attached)			150,000.00
	iii Clerk of Works Office Stationery			50,000.00
	iv Client laptop for Project administration and monitoring (specifications attached)			550,000.00
	v Allow for Contractor's profit and overheads for items i, ii,iii, & iv above	SUM		
	Project Approvals			
DE	Allow a sum of Three Hundred Thousand (300,000.00) only for Project approvals with Local Authority			300,000.00
	Allow for Contractor's profit and overheads for above (------ %)	SUM		
	Environmental Impact Assessment			
F	Allow a Provisional Sum of Kshs One Hundred and Fifty Thousand (Kshs 150,000.00) only for NEMA Environmental Impact Assessment and development approvals by the county government			150,000.00
	TOTAL FOR PROVISIONAL SUMS CARRIED TO GRAND SUMMARY			

GRAND SUMMARY

	PROPOSED OFFICE FIT OUT WORKS AT KENGEN PLAZA II 6TH FLOOR PARKING SILO ALONG KOLOBOT ROAD, NAIROBI. **GRAND SUMMARY**			
			FOR OFFICIAL USE	**FOR CONTRACTORS USE**
ITEM	**DESCRIPTION**		**KSHS**	**KSHS**
1	SCHEDULE 1: PARTICULAR PRELIMINARIES			
2	SCHEDULE 2: GENERAL PRELIMINARIES			
3	SCHEDULE 3: DEMOLITIONS			
4	SCHEDULE 4: OFFICES FITOUT - BUILDERS WORK			
5	SCHEDULE 5: ELECTRICAL WORKS, FIRE ALARM SYTEMS, UPS INSTALLATIONS AND AUTOMATIC VOLTAGE STABILIZER			
6	SCHEDULE 6: ICT AND SECURITY WORKS (DATA AND VOICE CABLING, CCTV INSTALLATION, AUDIO VISUAL INSTALLATIONS AND ACCESS CONTROL SYSTEMS)			
7	SCHEDULE 7: LIFT INSTALLATIONS			
8	SCHEDULE 8: HVAC (AIR CONDITIONING INSTALLATIONS AND MECHANICAL VENTILLATION)			
9	SCHEDULE 9: PLUMBING & DRAINAGE AND FIREFIGHTING (SANITARY FITTINGS, INTERNAL PLUMBING WORKS, INTERNAL DRAINAGE WORKS AND PORTABLE FIRE EXTINGUISHER)			
10	PROVISIONAL SUMS			
	TOTAL CARRIED TO FORM OF TENDER	**KSHS**		

Amount in words Ksh.....

.....

CONTRACTORS NAME.....

ADDRESS.....

DATE.....

SIGNATURE.....

STAMP

WITNESS'S NAME.....

ADDRESS.....

DATE.....

SIGNATURE.....

STAMP

SECTION VII - DRAWINGS

Note: Refer to separate attachments/ documents for:

1. Architectural Drawings
2. Mechanical drawings – AC, Plumbing and Firefighting equipment.
3. Structural Drawings
4. Electrical,ICT and Security Drawings (Access control and cameras).

5. PART III - THE CONDITIONS OF CONTRACT AND CONTRACT FORMS

[Name of Procuring

Entity][Name of

Contract]

[Architect Name and Address]

General Conditions of Contract

---

1. GENERALPROVISIONS

1.1 Definitions

In this Contract, except where context otherwise requires, the following terms shall be interpreted as indicated below. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

"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.

"Base Date" means a date 30 day prior to the submission of tenders.

"Bill of Quantities" means the priced and completed Bill of Quantities forming part of the tender.

"Completion Date" means the date of completion of the Works as certified by the Engineer.

"Contract Price" means the price defined in the contract and thereafter as adjusted in accordance with the provisionsof the Contract.

"Contract" means the agreement entered into between the Procuring Entity and the Contractor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works.

"Contractor's Documents" means the calculations, computer programs and other software, progress reports, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

"Contractor's Equipment" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Procuring Entity's Equipment (if any), Plant, Materials and any other things intended to form orforming part of the Permanent Works.

"Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labor and other employees of the Contractor and of each Subcontractor; and anyother personnel assisting the Contractor in the execution of the Works.

"Contractor's Representative" means the person named by the Contractor in the Contractor appointed from time to time by the Contractor who acts on behalf of the Contractor.

"Contractor" means the person(s) named as contractor in the Form of Tender accepted by the Procuring Entity.

"Cost" means expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

"Day" means a calendar day and **"year"** means 365 days.

"Dayworks" means Work inputs subject to payment on a time basis for labour and the associated materials and plant.

"Defect" means any part of the Works not completed in accordance with the Contract.

"Defects Liability Certificate" means the certificate issued by Architect upon correction of defects by the Contractor.

"Defects Liability Period" means the period named in the Special Conditions of Contract and calculated from theCompletion Date, within which the contractor is liable for any defects that may develop in the handed over works.

"Defects Notification Period" means the period for notifying defects in the Works or a Section (as the case may be)under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over the days stated in the Special Conditions of Contract.

"Drawings" means the drawings of the Works, as included in the Contract, and any additional and modifieddrawings issued by (or on behalf of) the Procuring Entity in accordance with the Contract.

"Final Payment Certificate" means the payment certificate issued under Sub-Clause 14.13 [Issue of Final PaymentCertificate].

"Final Statement" means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

"Force Majeure" is defined in Clause19 [Force Majeure].

"Foreign Currency" means a currency of another country (not Kenya) in which part (or all) of the Contract Priceis payable, but not the Local Currency.

"Goods" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

"Interim Payment Certificate" means a payment certificate issued under Clause 14 [Contract Price and Payment],other than the Final Payment Certificate.

"Laws" means all national legislation, statutes, ordinances, and regulations and by-laws of any legally constitutedpublic authority.

"Letter of Acceptance" means the letter of formal acceptance of a tender, signed by Procuring Entity, includingany annexed memoranda comprising agreements between and signed by both Parties.

"Local Currency" means the currency of Kenya.

"Materials" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works,including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

"Notice of Dissatisfaction" means the notice given by either Party to the other under Sub-Clause 20.3 indicating itsdissatisfaction and intention to commence arbitration.

"Special Conditions of Contract" means the pages completed by the Procuring Entity entitled Special Conditionsof Contract which constitute Part A of the Special Conditions.

"Party" means the Procuring Entity or the Contractor, as the context requires.

"Payment Certificate" means a payment certificate issued under Clause 14 [Contract Price and Payment]. **"Performance Certificate"** means the certificate issued under Sub-Clause 11.9 [Performance Certificate]. **"Performance Security"** means the security (or securities, if any) under

Sub-Clause 4.2 [Performance Security]. **"Permanent Works"** means the permanent works to be executed by the Contractor under the Contract.

"Plant" means the apparatus, machinery and other equipment intended to form or forming part of the PermanentWorks, including vehicles purchased for the Procuring Entity and relating to the construction or operation of the Works.

"Procuring Entity's Equipment" means the apparatus, machinery and vehicles (if any) made available by the Procuring Entity for the use of the Contract or in the execution of the Works, as stated in the Specification; but doesnot include Plant which has not been taken over by the Procuring Entity.

"Procuring Entity's Personnel" means the Engineer, the Engineer, the assistants and all other staff, labor and otheremployees of the Architect and of the Procuring Entity; and any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as Procuring Entity's Personnel.

"Procuring Entity" means the Entity named in the Special Conditions of Contract.

"Engineer" is the person named in the Appendix to Conditions of Contract (or any other competent person appointedby the Procuring Entity and notified to the Contractor, to act in replacement of the Engineer) who is responsible forsupervising the execution of the Works and administering the Contract and shall be an "Architect" or a "Quantity Surveyor" registered under the Architects and Quantity Surveyors Act Cap 525 or an "Engineer" registered under Engineers Registration Act Cap 530.

"Engineer" means the person appointed by the Procuring Entity to act as the Architect for the purposes of the Contract and named in the Special Conditions of Contract, or other person appointed from time to time by the Procuring Entity and notified to the Contractor

"Provisional Sum" means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

"Retention Money" means the accumulated retention moneys which the Procuring Entity retains under Sub-Clause
14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

"Schedules" means the document(s) entitled schedules, completed by the Contractor and submitted with the Form of Tender, as included in the Contract.

"Section" means a part of the Works specified in the Special Conditions of Contract as a Section (if any)

"Site Investigation Reports" are those reports that may be included in the tendering documents which a ref actual and interpretative about the surface and sub-surface condition sat the Site.

"Site" means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as formingpart of the Site.

"Specification" means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

"Start Date" or "Commencement Date "is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with the Site possession date(s).

"Statement" means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

"Subcontractor" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works.

"Taking-Over Certificate" means a certificate issued under Clause 10 [Procuring Entity's Taking Over].

"Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

"Temporary works" means works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

"Tender" means the Form of Tender and all other documents which the Contractor submitted with the Form of Tender, as included in the Contract.

"Tests after Completion" means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Procuring Entity.

"Tests on Completion" means the tests which are specified in the Contractor agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Procuring Entity.

"Time for Completion" means the time for completing the Works or a Section (as the case may be) as stated in the Special Conditions of Contract (with any extension calculated from the Commencement Date.

"Unforeseeable" means not reasonably foreseeable by an experienced contractor by the Base Date.

"Variation" means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

"Works" means the items the Procuring Entity requires the Contractor to undertake as defined in the Appendix to Conditions of Contract. **"Works" may** also mean the Permanent Works and the Temporary Works, or either of them as appropriate.

1.2 Interpretation

In the Contract, except where the context requires otherwise:

a) Words indicating one gender include all genders;
b) words indicating the singular also include the plural and words indicating the plural also include the singular;
c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

1.3 Communications

1.3.1 Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

a) In writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Special Conditions of Contract; and
b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Special Conditions of Contract. However:

   i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
   ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

1.3.2 Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Architect or the other Party, as the case may be.

1.4 Law and Language

1.4.1 The Contract shall be governed by the laws of **Kenya.**

1.4.2 The ruling language of the Contract shall be **English.**

1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:
The Contract Agreement,

a) The Letter of Acceptance,
b) The Special Conditions – Part A,
c) the Special Conditions – Part B
d) the General Conditions of Contract
e) the Form of Tender,
f) the Specifications and Bills of Quantities
g) the Drawings, and
h) the Schedules and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Architect shall issue any necessary clarification or instruction.

1.6 Contract Agreement

The Parties shall enter into a Contract Agreement within 14 days after the Contractor receives the Contract Agreement, unless the Special Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Special Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Procuring Entity.

1.7 Assignment

The Contractor shall not assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, the contractor:

a) May as sign the whole or any part with the prior consent of the Procuring Entity, and
b) may, as security in favor of a bank or financial institution, assign its right to moneys due, or to become due, under the Contract.

1.8 Care and Supply of Documents

1.8.1 The Specifications and Drawings shall be in the custody and care of the Procuring Entity. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawings and Bills of Quantities shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

1.8.2 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Procuring Entity. Unless otherwise stated in the Contract, the Contractor shall supply to the Architect two copies of each of the Contractor's Documents.

1.8.3 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Procuring Entity's Personnel shall have the right of access to all these documents at all reasonable times.

1.8.4 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

1.9 Timely provision of Drawings or Instructions

1.9.1 The Contractor shall give notice to the Architect whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption

likely to be suffered if it is late.

1.9.2 If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Architect to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

b) payment of any other associated costs accrued, which shall be included in the Contract Price.

1.9.3 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

1.9.4 However, if and to the extent that the Architect failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, or costs accrued.

1.10 Procuring Entity's Use of Contractor's Documents

1.10.1 As agreed between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

1.10.2 The Contractor shall be deemed (by signing the Contract) to give to the Procuring Entity a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:

a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

1.10.3 The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Procuring Entity for purposes other than those permitted under Sub-Clause 1.10.2.

1.11 Contractor's Use of Procuring Entity's Documents

As agreed between the Parties, the Procuring Entity shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Procuring Entity. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Procuring Entity's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12 Confidential Details

1.12.1 The Contractor's and the Procuring Entity's Personnel shall ensure confidentiality at all times. The confidentiality shall survive termination or completion of the contract. They shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

1.12.2 The Contractor's and the Procuring Entity's Personnel shall also treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Special Conditions of Contract:

a) The Procuring Entity shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specifications as having been (or to be) obtained by the Procuring Entity; and the Procuring Entity shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and

b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Procuring Entity harmless againstand from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated groupingof two or more persons:

a) These persons shall be deemed to be jointly and severally liable to the Procuring Entity for the performanceof the Contract;
b) these persons shall notify the Procuring Entity of their leader who shall have authority to bind the Contractorand each of these persons; and
c) the Contractor shall not alter its composition or legal status without the prior consent of the Procuring Entity.

1.15 Inspections and Audit by the Procuring Entity

Pursuant to paragraph 2.2(e). of Appendix B to the General Conditions, the Contractor shall permit and shall cause its subcontractors and sub-consultants to permit, the Public Procurement Regulatory Authority, Procuring Entity and/or persons appointed or designated by the Government of Kenya 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 Procuring Entity if requested by the Procuring Entity. The Contractor'sand its Subcontractors' and sub-consultants' attention is drawn to Sub-Clause 15.6 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Procuring Entity's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of in eligibility pursuant to the Procuring Entity's prevailing sanctions procedures).

2. THE PROCURING ENTITY

2.1 Right of Access to the Site

2.1.1 The Procuring Entity shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the **Special Conditions of Contract.** The right and possession may not be exclusive to theContractor. If, under the Contract, the Procuring Entity is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Procuring Entity shall do so in the time and manner stated in the Specification. However, the Procuring Entity may withhold any such right or possession until the PerformanceSecurity has been received.

2.1.2 If no such time is stated in the Special Conditions of Contract, the Procuring Entity shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].

2.1.3 If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Procuring Entity to give any such right or possession within such time, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extensionof Time for Completion], and
b) payment of any such Cost-plus profit, which shall be included in the Contract Price.

2.1.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agreeor determine these matters.

2.1.5 However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not beentitled to such extension of time, Cost or profit.

2.2 Permits, Licenses or Approvals

2.2.1 The Procuring Entity shall provide, at the request of the Contractor, such reasonable assistance as to allow theContractor to obtain properly:

a) Copies of the Laws of Kenya which are relevant to the Contract but are not readily available, and
b) any permits, licenses or approvals required by the Laws of Kenya:

i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
ii) for the delivery of Goods, including clearance through customs, and
iii) for the export of Contractor's Equipment when it is removed from the Site.

2.3 Procuring Entity's Personnel

The Procuring Entity shall be responsible for ensuring that the Procuring Entity's Personnel and the ProcuringEntity's other contractor son the Site:

a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and

b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) ofSub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

2.4 Procuring Entity's Financial Arrangements

The Procuring Entity shall make and maintain all necessary financial arrangements which will enable the Procuring Entity to pay the Contract Price punctually (as estimated at that time) in accordance with Clause14 [Contract Priceand Payment].

3. THE ENGINEER

3.1 Architect Duties and Authority

3.1.1 The Procuring Entity shall appoint the Architect who shall carry out the duties as signed to him in the Contract. TheArchitect staff shall include suitably qualified Assistants and other professionals who are competent to carry out these duties. The Architect Name and Address shall be provided in the **Special Conditions of Contract.**

3.1.2 The Architect shall have no authority to amend the Contract.

3.1.3 The Architect May exercise the authority attributable to the Architect as specified in or necessarily to be implied from the Contract. If the Architect is required to obtain the approval of the Procuring Entity before exercising a specified authority, the requirements shall be as stated in the S**pecial Conditions of Contract**. The Procuring Entityshall promptly inform the Contractor of any change to the authority attributed to the Engineer.

3.1.4 However, whenever the Architect exercises a specified authority for which the Procuring Entity's approval is required, then (for the purposes of the Contract) the contractor shall require the Architect to provide evidence of such approval before complying with the instruction.

3.1.5 Except as otherwise stated in these Conditions:

a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Architectshall be deemed to act for the Procuring Entity;
b) the Architect has no authority to relieve either Party of any duties, obligations or responsibilities under theContract;
c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal,

request, test, or similar act by the Architect (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and

d) any act by the Architect in response to a Contractor's request shall be notified in writing to the Contractorwithin 14 days of receipt.

3.1.6 The following provisions shall apply:

The Architect shall obtain the specific approval of the Procuring Entity before taking action under the-followingSub-Clauses of these Conditions:

a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.

b) Sub-Clause 13.1: instructing a Variation, except;

i) In an emergency situation as determined by the Engineer, or

ii) If such a Variation would increase the Accepted Contract Amount by less than the percentage specified inthe **Special Conditions of Contract.**

c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with SubClause 13.1 or 13.2.

d) Sub-Clause13.4: Specifying the amount payable in each of the applicable three currencies.

3.1.7 Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergencyoccurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to doall such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shallforth with comply, despite the absence of approval of the Procuring Entity, with any such instruction of the Engineer. The Architect shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Procuring Entity.

3.2 Delegation by the Engineer

3.2.1 The Architect may from time to time assign duties and delegate authority to assistants and may also revoke such assignment or delegation. These assistants may include a resident Engineer, and/or independent inspectors appointed to inspect and/ or test items of Plant and/or Materials. The assignment, delegation or revocation shall bein writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Architect shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

3.2.2 Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issueinstructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore notprejudice the right of the Architect to reject the work, Plant or Materials;

b) If the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

3.3 Instructions of the Engineer

3.3.1 The Architect may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under Clause 3.2.1.

3.3.2 The Contractor shall comply with the instructions given by the Architect or delegated assistant, on any matter relatedto the Contract. Whenever practicable, their instructions shall be given in writing. If the Architect or a delegated assistant:

a) Gives an oral instruction,

b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within

two workingdays after giving the instruction, and

c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

Then the confirmation shall constitute the written instruction of the Architect or delegated assistant (as the case may be).

3.4 Replacement of the Engineer

If the Procuring Entity intends to replace the Engineer, the Procuring Entity shall, in not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of theintended person to replace the Engineer.

3.5 Determinations

3.5.1 Whenever these Conditions provide that the Architect shall proceed in accordance with this Sub-Clause3.5 to agreeor determine any matter, the Architect shall consult with each Party in an endeavor to reach agreement. If agreementis not achieved, the Architect shall make a fair determination in accordance with the Contract, taking due regard ofall relevant circumstances.

3.5.1 The Architect shall give notice to both Parties of each agree mentor determination, with supporting particulars, within 30 days from the receipt of the corresponding claim or request except when otherwise specified. Each Partyshall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4. THE CONTRACTOR

4.1 Contractor's General Obligations

4.1.1 The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordancewith the Contract and with the Architect instructions, ands hall remedy any defects in the Works.

4.1.2 The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, requiredin and for this design, execution, completion and remedying of defects.

4.1.3 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in anyeligible source country.

4.1.4 The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required forthe item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

4.1.5 The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.

4.1.6 If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Special Conditions:

a) The Contractor shall submit to the Architect the Contractor's Documents for this part in accordance with the procedures specified in the Contract;

b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written inthe language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Architect to add to the Drawings for co-ordination of each Party's designs;

c) the Contractor shall be responsible for this part and it shall, when the Works are completed, befit for such purposes for which the part is intended as are specified in the Contract; and

d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Architect the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specificationand in sufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repairthis part of the Works. Such part shall not be considered to be completed for the purposes of taking-over underSub-Clause 10.1 [Taking Over of

the Works and Sections] until these documents and manuals have been submitted to the Engineer.

4.2 Performance Security

4.2.1 The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the **Special Conditions of Contract** and denominated in the currency (ies) of the Contract or in a freely convertible currency acceptable to the Procuring Entity. If an amount is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.

4.2.2 The Contractor shall deliver the Performance Security to the Procuring Entity within 30 days after receiving the Notification of Award and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank selected by the Contractor and shall be in the form annexed to the Special Conditions, as stipulated by the Procuring Entity in the Special Conditions of Contract, or in another form approved by the Procuring Entity.

4.2.3 The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

4.2.4 The Procuring Entity shall not make a claim under the Performance Security, except for amounts to which the Procuring Entity is entitled under the Contract.

4.2.5 The Procuring Entity shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Procuring Entity was not entitled to make the claim.

4.2.6 The Procuring Entity shall return the Performance Security to the Contractor within 14 days after receiving a copy of the Taking-Over Certificate.

4.2.7 Without limitation to the provisions of the rest of this Sub-Clause, whenever the Architect determines an addition or a reduction to the Contract Price as a result of a change in cost and/ or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Architect request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

4.3 Contractor's Representative

4.3.1 The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract. The Contractor's Representative's Name and Address shall be provided in the **Special Conditions of Contract.**

4.3.2 Unless the Contractor's Representative **is named in the Contract**, the Contractor shall, prior to the Commencement Date, submit to the Architect for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

4.3.3 The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint are placement.

4.3.4 The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Architect prior consent, and the Architect shall be notified accordingly.

4.3.5 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

4.3.6 The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Architect has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

4.3.7 The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause1.4 [Lawand Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

4.4 Sub-contractors

4.4.1 The Contractor shall not subcontract the whole of the Works. The contractor may however subcontract the works as provided in Clause 34.2.

4.4.2 The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if theywere the acts or defaults of the Contractor. Unless otherwise stated in the Special Conditions:

a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontractfor which the Subcontractor is named in the Contract;
b) The prior consent of the Procuring Entity shall be obtained to other proposed Subcontractors;
c) the Contractor shall give the Procuring Entity not less than 14 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
d) each subcontract shall include provisions which would entitle the Procuring Entity to require the subcontractto be assigned to the Procuring Entity under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity].

4.4.3 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

4.4.4 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

4.5 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Procuring Entity, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Procuring Entity for the work carried out by the Subcontractor after the assignment takes effect.

4.6 Co-operation

4.6.1 The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunitiesfor carrying out work to:

a) The Procuring Entity's Personnel,
b) Any other contractors employed by the Procuring Entity, and
c) The personnel of any legally constituted public authorities, who may be employed in the execution on ornear the Site of any work not included in the Contract.

4.6.2 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

4.6.3 If, under the Contract, the Procuring Entity is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Architect in the time and manner stated in the Specification.

4.7 Setting Out of the Works

4.7.1 The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contractor notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

4.7.2 The Procuring Entity shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

4.7.3 If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/ or Cost, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
b) payment of any such costs accrued, which shall be included in the Contract Price.

4.7.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and
(i) the matters described in sub-paragraphs (a) and (b) above related to this.

4.8 Safety Procedures

The Contractor shall:
a) Comply with all applicable safety regulations,
b) Take care for the safety of all persons entitled to be on the Site,
c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Procuring Entity's Taking Over], and
e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

4.9 Quality Assurance

4.9.1 The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Architect shall be entitled to audit any aspect of the system.

4.9.2 Details of all procedures and compliance documents shall be submitted to the Architect for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor itself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

4.10 Site Data

4.10.1 The Procuring Entity shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Procuring Entity's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Procuring Entity shall similarly make available to the Contractor all such data which come into the Procuring Entity's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

4.10.2 To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

a) The form and nature of the Site, including sub-surface conditions,
b) the hydrological and climatic conditions,
c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,

d) the Laws, procedures and labour practices of Kenya, and

e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water andother services.

4.11 Sufficiency of the Accepted Contract Amount

4.11.1 The Contractor shall be deemed to:

a) Have satisfied itself as to the correctness and sufficiency of the Accepted Contract Amount, and

b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].

4.11.2 Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations underthe Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution andcompletion of the Works and the remedying of any defects.

4.12 Unforeseeable Physical Conditions

4.12.1 In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

4.12.2 If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Architect as soon as practicable.

4.12.3 This notice shall describe the physical conditions, so that they can be inspected by the Architect and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Architect may give. If an instruction constitutes a Variation, Clause 13 [Variationsand Adjustments] shall apply.

4.12.4 If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice underSub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4[Extension of Time for Completion], and

b) payment of any such Cost, which shall be included in the Contract Price.

4.12.5 Upon receiving such notice and inspecting and/or investigating these physical conditions, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

4.12.6 However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Architect may also review whether other physical conditions in similar parts of the Works (if any) were more favorable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favorable conditions were encountered, the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of theWorks, shall not result in a net reduction in the Contract Price.

4.12.7 The Architect shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor'sinterpretation of any such evidence.

4.13 Rights of Way and Facilities

Unless otherwise specified in the Contract the Procuring Entity shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shallobtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

4.14 Avoidance of Interference

4.14.1 The Contractor shall not interfere unnecessarily or improperly with:

a) The convenience of the public, or

b) The access to and use and occupation of all roads and foot paths, irrespective of whether they are public orin the possession of the Procuring Entity or of others.

4.14.2 The Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 Access Route

4.15.1 The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

4.15.2 Except as otherwise stated in these Conditions:

a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required forhis use of access routes;

b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;

c) the Procuring Entity shall not be responsible for any claims which may arise from the use or otherwise ofany access route;

d) the Procuring Entity does not guarantee the suitability or availability of particular access routes; and

e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shallbe borne by the Contractor.

4.16 Transport of Goods

Unless otherwise stated in the Special Conditions:

a) the Contractor shall give the Architect not less than 21 days' notice of the date on which any Plant or amajor item of other Goods will be delivered to the Site;

b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing andprotecting all Goods and other things required for the Works; and

c) the Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods and shall negotiate and pay all claims arising from their transport.

4.17 Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

4.18 Protection of the Environment

4.18.1 The contractor shall comply with the applicable environmental laws, regulations and policies.

4.18.2 The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

4.18.3 The Contractors hall ensure that emissions, surfaced is charges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

4.19 Electricity, Water and Gas

4.19.1 The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

4.19.2 The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specifications. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuringthe quantities consumed.

4.19.3 The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Architect in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.

4.20 Procuring Entity's Equipment and Free-Issue Materials

4.20.1 The Procuring Entity shall make the Procuring Entity's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

a) The Procuring Entity shall be responsible for the Procuring Entity's Equipment, except that

b) the Contractor shall be responsible for each item of Procuring Entity's Equipment whilst any of theContractor's Personnel is operating it, driving it, directing it or in possession or control of it.

4.20.1 The appropriate quantities and the amounts due (at such stated prices) for the use of Procuring Entity's Equipmentshall be agreed or determined by the Architect in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] andSub-Clause3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.

4.20.2 The Procuring Entity shall supply, free of charge, the “free-issue materials” (if any) in accordance with the detailsstated in the Specification. The Procuring Entity shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them and shall promptly give notice to the Architect of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Procuring Entity shall immediately rectify the notified shortage, defector default.

4.20.3 After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Procuring Entity of liability for any shortage, defect or default not apparent from a visual inspection.

4.21 Progress Reports

4.21.1 Unless otherwise stated in the Special Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Architect in six copies. The first report shall cover the period up to the end ofthe first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

4.21.2 Reporting shall continue until the Contractor has completed all work which is known to be outstanding at thecompletion date stated in the Taking-Over Certificate for the Works. Each report shall include:

a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined

in Clause 5 [Nominated Subcontractors]),

b) photographs showing the status of manufacture and of progress on the Site;

c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacturelocation, percentage progress, and the actual or expected dates of:
   i) commencement of manufacture,
   ii) Contractor's inspections,
   iii) tests, and
   iv) shipment and arrival at the Site;

d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];

e) copies of quality assurance documents, test results and certificates of Materials;

f) list of notices given under Sub-Clause 2.5 [Procuring Entity's Claims] and notices given under Sub- Clause 20.1 [Contractor's Claims];

g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and

h) comparison so factual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted toovercome delays.

4.22 Security of the Site

Unless otherwise stated in the Special Conditions:

a) The Contractor shall be responsible for keeping unauthorized persons off the Site, and

b) authorized persons shall be limited to the Contractor's Personnel and the Procuring Entity's Personnel; and to any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as authorized personnel of the Procuring Entity's other contractors on the Site.

4.23 Contractor's Operations on Site

4.23.1 The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained bythe Contractor and agreed by the Architect as additional working areas. The Contractor shall take all necessaryprecautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

4.23.2 During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear awayand remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

4.23.3 Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of theSite and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in aclean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period,such Goods as are required for the Contractor to fulfil obligations under the Contract.

4.24 Fossils

4.24.1 All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Procuring Entity. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

4.24.2 The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub- Clause
20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4[Extension of Time for Completion], and

b) payment of any such Cost, which shall be included in the Contract Price.
After receiving this further notice, the Architect shall proceed in accordance with Sub-

Clause 3.5[Determinations] to agree or determine these matters.

5. NOMINATED SUBCONTRACTORS

5.1 Definition of "nominated Subcontractor"

In this Contract, "nominated Subcontractor" means a Subcontractor:

a) Who is nominated by the Procuring Entity, or

5.2 Contractor has nominated as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractorraises reasonable objection by notice to the Procuring Entity as soon as practicable, with supporting particulars. Anobjection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless theProcuring Entity agrees in writing to indemnify the Contractor against and from the consequences of the matter:

a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources orfinancial strength;

b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligenceor misuse of Goods by the nominated Subcontractor, his agents and employees; or

c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for thesubcontracted work (including design, if any), the nominated Subcontractor shall:

   i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge hisobligations and liabilities under the Contract;

   ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and

   iii) be paid only if and when the Contractor has received from the Procuring Entity payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Architect certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

5.4.1 Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Architect may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention orotherwise. Unless the Contractor:

(a) Submits this reasonable evidence to the Engineer, or

(b) i) Satisfies the Architect in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and

iii) Submits to the Architect reasonable evidence that the nominated Subcontractor has been notified of theContractor's entitlement, then the Procuring Entity may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidencedescribed in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Procuring Entity, the amount which the nominated Subcontractor was directly paid by the Procuring Entity.

6. STAFF AND LABOR

6.1 Engagement of Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor with appropriate qualifications and experience from sources within Kenya.

6.2 Rates of Wages and Conditions of Labor

6.2.1 The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those establishedfor the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages andconditions observed locally by Procuring Entity's whose trade or industry is similar to that of the Contractor.

6.2.2 The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in Kenyain respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of Kenyafor the time being in force, and the Contractor shall perform such duties in regard to such deductions there of as may be imposed on him by such Laws.

6.3 Persons in the Service of Procuring Entity

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Procuring Entity's Personnel.

6.4 Labor Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, employment of children, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

6.5 Working Hours

No work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hoursstated in the **Special Conditions of Contract**, unless:

a) Otherwise stated in the Contract,
b) The Architect gives consent, or
c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer, provided that work done outside the normalworking hours shall be considered and paid for as overtime.

6.6 Facilities for Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities on site for the Contractor's Personnel. The Contractor shall also provide facilities for the Procuring Entity's Personnel as stated in the Specifications. The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7 Health and Safety

6.7.1 The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Procuring Entity's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

6.7.2 The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

6.7.3 The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Architect may reasonably require.

6.7.4 The Contractor shall conduct an awareness programme on HIV and other sexually transmitted diseases via an approved service provider and shall undertake such other measures taken to reduce the risk of the transfer of thesediseases between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

6.8 Contractor's Superintendence

6.8.1 Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary super intendance to plan, arrange, direct, manage, inspect and test the work.

6.8.2 Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (includingthe methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

6.9 Contractor's Personnel

6.9.1 The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Contractors Key personnel shall be named in the Special Conditions of Contract. The Architect may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, includingthe Contractor's Representative if applicable, who:

a) Persists in any misconduct or lack of care,
b) Carries out duties in competently or negligently,
c) fails to conform with any provisions of the Contract,
d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or
e) based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the executionof the Works.

6.9.2 If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

6.10 Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

6.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property onand near the Site.

6.12 Foreign Personnel

6.12.1 The Contractor shall not employ foreign personnel unless the contractor demonstrates that there are no Kenyanswith the required skills.

6.12.2 The Contractor shall be responsible for the return of any foreign personnel to the place where they were recruited or to their domicile. In the event of the death in Kenya of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.14 Measures against Insect and Pest Nuisance

The Contractor shall a tall times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.15 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of Kenya, onsite, import, sell, give, barter orotherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.

6.16 Prohibition of Forced or Compulsory Labour

The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.

6.17 Prohibition of Harmful Child Labor

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral,or social development. Where the relevant labour laws of Kenya have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

6.18 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shallinclude the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarizedon a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted bythe Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

6.19 Workers' Organizations

The Contractor shall comply with the relevant labor laws that recognize workers' rights to form and to join workers'organizations of their choosing without interference.

6.20 Non-Discrimination and Equal Opportunity

The Contractor shall base the labour employment on the principle of equal opportunity and fair treatment and shallnot discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employ mentor retirement, and discipline.

7. PLANT, MATERIALS AND WORKMANSHIP

7.1 Manner of Execution

The Contractor shall carry out the manufacture/assemble of plant, the production and manufacture of Materials, andall other execution of the Works:

a) In the manner (if any) specified in the Contract,
b) in a proper workman like and careful manner, in accordance with recognized good practice, and
c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Architect forconsent prior to using the Material sin or for the Works:

a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor'scost, and

b) additional samples instructed by the Architect as a Variation.

Each sample shall be labeled as to origin and intended use in the Works.

7.3 Inspection

7.3.1 The Procuring Entity's Personnel shall at all reasonable times:

a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained,and

b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect,measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

7.3.2 The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

7.3.3 The Contractor shall give notice to the Architect whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Architect shall then either carry out the examination, inspection,measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Architect does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and there after reinstate and make good, all at the Contractor's cost.

7.4 Testing

7.4.1 This Sub-Clause shall apply to all tests specified in the Contract.

7.4.2 Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

7.4.3 The Architect may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, orinstruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

7.4.4 The Architect shall give the Contractor not less than 24 hours' notice of the Architect intention to attend the tests. If the Architect does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Architect presence.

7.4.5 If the Contractor suffers delay and/ or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Architect and shall be entitledsubject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4[Extension of Time for Completion], and

b) payment of any such Cost-plus profit, which shall be included in the Contract Price.

7.4.6 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agreeor determine these matters.

7.4.7 The Contractor shall promptly forward to the Architect duly certified reports of the tests. When the specified tests have been passed, the Architect shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Architect has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5 Rejection

7.5.1 If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is foundto be defective or otherwise not in accordance with the Contract, the Architect may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

7.5.2 If the Architect requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity.

7.6 Remedial Work

7.6.1 Notwithstanding any previous test or certification, the Architect may instruct the Contractor to:

a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
b) remove and re-execute any other work which is not in accordance with the Contract, and
c) execute any work which is urgently required for the safety of the Works, whether because of an accident,unforeseen able event or otherwise.

7.6.2 The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

7.6.3 If the Contractor fails to comply with the instruction, the Procuring Entity shall be entitled to employ and pay otherpersons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for thework, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity all costs arising from this failure.

7.6.4 If the contractor repeatedly delivers defective work, the Procuring Entity may consider termination in accordance with Clause 15.

7.7 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall become the property of theProcuring Entity at whichever is the earlier of the following times, free from liens and other encumbrances:

a) When it is incorporated in the Works;
b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10[Payment for Plant and Materials in Event of Suspension].

7.8 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

a) Natural materials obtained from outside the Site, and
b) The disposal of material from demolitions and excavations and of other surplus material (whether natural orman-made), except to the extent that disposal are as within the Site are specified in the Contract.

8. COMMENCEMENT, DELAYS AND SUSPENSION

8.1 Commencement of Works

8.1.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent condition shave all been fulfilled and the Architect notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

a) Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of Kenya;

b) except if otherwise specified in the Special Conditions of Contract, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance withLaws] as required for the commencement of the Works.

c) Receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided thatthe corresponding bank guarantee has been delivered by the Contractor.

8.1.2 If the said Architect instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause1 6.2 [Termination by Contractor].

8.1.3 The Contractor shall commence the execution of the Works as soon as is reasonably practicable after theCommencement Date and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion forthe Works or Section (as the case may be), including:

a) Achieving the passing of the Tests on Completion, and

b) completing all work which is stated in the Contract as being required for the Works or Section to be consideredto be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

8.3 Programme

8.3.1 The Contractor shall submit a detailed time programme to the Architect within1 4 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programmeshall include:

a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,

b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),

c) the sequence and timing of inspections and tests specified in the Contract, and

d) a supporting report which includes:

   i) a general description of the methods which the Contractor intends to adopt, and of the major stages,in the execution of the Works, and

   ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

8.3.2 Unless the Engineer, within 14 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Procuring Entity's Personnel shall be entitled to rely upon the programme when planning their activities.

8.3.3 The Contractor shall promptly give notice to the Architect of specific probable future events or circumstances whichmay adversely affect the work, increase the Contract Price or delay the execution of the Works.

8.3.4 If, at any time, the Architect gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contractor to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Architect in accordance with this Sub-Clause.

8.4 Extension of Time for Completion

8.4.1 The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,

b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,

c) exceptionally adverse climatic conditions,

d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or

e) any delay, impediment or prevention caused by or attributable to the Procuring Entity, the Procuring Entity's Personnel, or the Procuring Entity's other contractors.

8.4.2 If the Contractor considers itself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Architect in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Architect shall review previous determinations and may increase, but shall not decrease, the total extension of time.

8.5 Delays Caused by Authorities

If the following conditions apply, namely:

a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in Kenya,

b) These authorities delay or disrupt the Contractor's work, and

c) the delay or disruption was Unforeseeable, then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

8.6 Rate of Progress

8.6.1 If, at any time:

a) Actual progress is too slow to complete within the Time for Completion, and/or

b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme], other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Architect may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

8.6.2 Unless the Architect notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Procuring Entity to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity, in addition to delay damages (if any) under Sub-Clause 8.7 below.

8.6.3 Additional costs of revised methods including acceleration measures, instructed by the Architect to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Procuring Entity, without generating, however, any other additional payment benefit to the Contractor.

8.7 Delay Damages

8.7.1 If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay delay damages to the Procuring Entity for this default. These delay damages shall be the sum stated in the **Special Conditions of Contract**, which shall be paid for everyday which shall elapse between the relevant Time for Completion and the date stated in the taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Special Conditions of Contract.

8.7.2 These delay damages shall be the only damages due from the Contractor for such default, other than

in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

8.8 Suspension of Work

8.8.1 The Architect may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

8.8.2 The Architect may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

8.9 Consequences of Suspension

8.9.1 If the Contractor suffers delay and/or incurs Cost from complying with the Architect instructions under Sub-Clause
8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
b) Payment of any such Cost, which shall be included in the Contract Price.

8.9.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

8.10 The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work]. Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/ or Materials which have not been delivered to Site, if:

a) The work on Plant or delivery of Plant and/ or Materials has been suspended for more than 30 days, and
b) the Contractor has marked the Plant and/or Materials as the Procuring Entity's property in accordance with the Architect instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Architect permission to proceed. If the Architect does not give permission within 30 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Architect shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Architect an instruction to this effect under Clause 13 [Variations and Adjustments].

9. TESTS ON COMPLETION

9.1 Contractor's Obligations

9.1.1 The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

9.1.2 The Contractor shall give to the Architect not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carriedout within 14 days after this date, on such day or days as the Architect shall instruct.

9.1.3 In considering the results of the Tests on Completion, the Architect shall make allowances for the effect of any useof the Works by the Procuring Entity on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

9.2.1 If the Tests on Completion are being unduly delayed by the Procuring Entity, Sub-Clause 7.4 [Testing] (fifth paragraph) and/ or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

9.2.2 If the Tests on Completion are being unduly delayed by the Contractor, the Architect may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Testson such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

9.2.3 If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Procuring Entity's Personnel may proceed with the Test sat the risk and cost of the Contractor. The Tests on Completion shall then bedeemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting of related works

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Architect or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeatedunder the same terms and conditions.

9.4 Failure to Pass Tests on Completion

9.4.1 If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Architect shall be entitled to:

a) Order further repetition of Tests on Completion under Sub-Clause 9.3; or

b) if the failure deprives the Procuring Entity of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Procuring Entity shall have the same remediesas are provided in sub-paragraph (c) of Sub-Clause1 1.4 [Failure to Remedy Defects].

10. PROCURING ENTITY'S TAKING OVER

10.1 Taking Over of the Works and Sections

10.1.1 Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Procuring Entity when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

10.1.2 The Contractor may apply by notice to the Architect for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contract or may similarly apply for a Taking-Over Certificate for each Section.

10.1.3 The Architect shall, within 30 days after receiving the Contractor's application:

a) Issue the Taking-Over Certificate to the Contract or, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will notsubstantially affect the use of the Works or Section for their intended purpose (either until or whilst this workis completed and these defects are remedied); or

b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enablethe Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a furthernotice under this Sub-Clause.

10.1.4 If the Architect fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract,the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

10.2.1 The Architect may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of thePermanent Works.

10.2.2 The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specifiedin the Contract or agreed by both Parties) unless and until the Architect has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:

a) The part which is used shall be deemed to have been taken over as from the date on which it is used,

b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall passto the Procuring Entity, and

c) if requested by the Contractor, the Architect shall issue a Taking-Over Certificate for this part.

10.2.3 After the Architect has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. TheContractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

10.2.4 If the Contractor incurs Cost as a result of the Procuring Entity taking over and/or using a part of the Works, otherthan such use as is specified in the Contractor agreed by the Contractor, the Contractor shall (i) give notice to the Architect and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such accrued costs,which shall be included in the Contract Price. After receiving this notice, the Architect shall proceed in accordancewith Sub-Clause 3.5 [Determinations] to agree or determine this accrued cost.

10.2.5 If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculatedas the proportion which the value of the part so certified bears to the value of the Works or Section (as the case maybe) as a whole. The Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages] and shall not affect the maximum amount of these damages.

10.3 Interference with Tests on Completion

10.3.1 If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Procuring Entity is responsible, the Procuring Entity shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

10.3.2 The Architect shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Architect shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

10.3.3 If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4[Extension of Time for Completion], and

b) payment of any such accrued costs, which shall be included in the Contract Price.

10.3.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agreeor determine these matters.

10.4 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not bedeemed to certify completion of any ground or other surfaces requiring reinstatement.

11. DEFECTS LIABILITY

11.1 Completion of Outstanding Work and Remedying Defects

11.1.1 In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within suchreasonable time as is instructed by the Engineer, and

b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the ProcuringEntity on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

11.1.2 If a defect appears or damage occurs, the Contractor shall be notified accordingly by the Engineer.

11.2 Cost of Remedying Defects

11.2.1 All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and RemedyingDefects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

a) Any design for which the Contractor is responsible,

b) Plant, Materials or workmanship not being in accordance with the Contract, or

c) Failure by the Contractor to comply with any other obligation.

11.2.2 If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by(or on behalf of) the Procuring Entity, and Sub-Clause 13.3 [Variation Procedure] shall apply.

11.3 Extension of Defects Notification Period

11.3.1 The Procuring Entity shall be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended byreason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

11.3.2 If delivery and/ or erection of Plant and/ or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shallnot apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plantand/ or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

11.4.1 If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by the Engineer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

11.4.2 If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2[Cost of Remedying Defects], the Procuring Entity may (at hisoption):

(a) Carry out the work itself or by others, in a reasonable manner and at the Contractor's cost, but the Contractorshall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity the costs reasonably incurred by the Procuring Entity in remedying the defect or damage;

(b) Require the Architect to agree or determine a reasonable reduction in the Contract Price in accordance withSub-Clause 3.5 [Determinations]; or

(c) if the defect or damage deprives the Procuring Entity of substantially the whole benefit of the Works or any major part of the Works, terminate the Contracts a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contractor otherwise, the ProcuringEntity shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plusfinancing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5 Removal of Defective Work

If the defector damage cannot be remedied expeditiously on the Site and the Procuring Entity gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6 Further Tests

11.6.1 If the work of remedying of any defector damage may affect the performance of the Works, the Architect may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within14 days after the defect or damage is remedied.

11.6.2 These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

11.7 Right of Access

Until the Completion Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Procuring Entity's reasonable security restrictions.

11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect on parts of the works that have already accepted, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractorunder Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determinedby the Architect in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

11.9 Completion Certificate

11.9.1 Performance of the Contractor's obligations shall not be considered to have been completed until the Architect has issued the Completion Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

11.9.2 The Architect shall issue the Completion Certificate within 30days after the latest of the expiry dates of the Defects Liability Period, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completedand tested all the Works, including remedying any defects. A copy of the Completion Certificate shall be issued tothe Procuring Entity.

11.9.3 Only the Completion Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Completion Certificate has been issued, each Party shall remain liable for the fulfilment of any obligationwhich remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

11.11.1 Upon receiving the Completion Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

11.11.2 If all these items have not been removed within 30 days after receipt by the Contractor of the Completion Certificate, the Procuring Entity may sell or otherwise dispose of any remaining items. The Procuring Entity shallbe entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

11.11.3 Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the ProcuringEntity's costs, the Contractor shall pay the outstanding balance to the Procuring Entity.

12. MEASUREMENT AND EVALUATION

12.1 Works to be Measured

12.1.1 The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall showin each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

12.1.2 Whenever the Architect requires any part of the Works to be measured, reasonable notice shall be given to theContractor's Representative, who shall:

a) promptly either attend or send another qualified representative to assist the Architect in making themeasurement, and
b) supply any particulars requested by the Engineer.

12.1.3 If the Contractor fails to attend or send a representative, the measurement made by the Architect shall be acceptedas accurate.

12.1.4 Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, theseshall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shallbe accepted as accurate.

12.1.5 If the Contractor examines and disagrees the records, and/ or does not sign them as agreed, then the Contractor shall give notice to the Architect of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Architect shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Architect within 14 days after being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract:

a) Measurement shall be made of the net actual quantity of each item of the Permanent Works, and
b) the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

12.3.1 Except as otherwise stated in the Contract, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of work done by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

12.3.2 For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item inthe Contractor, if there is no such item, specified for similar work.

12.3.3 Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

12.3.4 However, for a new item of work, a new rate or price shall be appropriate for such item of work if:

a) The work is instructed under Clause13 [Variations and Adjustments],

b) no rate or price is specified in the Contract for this item, and

c) no specified rate or price is appropriate because the item of work is not of similar character, or is notexecuted under similar conditions, as any item in the Contract.

12.3.5 Each new rate or price shall be derived from any relevant rates or prices in the Contract. If no rates or prices are relevant for the new item of work, it shall be derived from the reasonable Cost of executing such work, prevailing market rates, together with profit, taking account of any other relevant matters.

12.3.6 Until such time as an appropriate rate or price is agreed or determined, the Architect shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

12.3.7 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: *(corrected tender price- tender price)/ tender price X 100*.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have beendeemed to be covered by a sum forming part of the Accepted Contract Amount;

b) The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and

c) this cost is not deemed to be included in the evaluation of any substituted work; then the Contractor shall give notice to the Architect accordingly, with supporting particulars. Upon receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13. VARIATIONS AND ADJUSTMENTS

13.1 Right to Vary

13.1.1 Variations may be initiated by the Architect at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. No Variation instructed by the Architect under this Clause shall in any way vitiate or in validate the Contract.

13.1.2 The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Architect stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Architect shall cancel, confirm or vary the instruction.

13.1.3 Each Variation may include:

a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
b) changes to the quality and other characteristics of any item of work,
c) changes to the levels, positions and/ or dimensions of any part of the Works,
d) omission of any work unless it is to be carried out by others,
e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
f) changes to the sequence or timing of the execution of the Works.

13.1.4 The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Architect instructs after obtaining approval of the Procuring Entity.

13.2. Variation Order Procedure

13.2.1 Prior to any Variation Order under Sub-Clause 13.1.4 the Architect shall notify the Contractor of the nature and form of such variation. As soon as possible after having received such notice, the Contractor shall submit to the Engineer:

a) A description of work, if any, to be performed and a programme for its execution, and
b) the Contractor's proposals for any necessary modifications to the Programme according to Sub-Clause 8.3 or to any of the Contractor's obligations under the Contract, and
c) the Contractor's proposals for adjustment to the Contract Price.

Following the receipt of the Contractor's submission the Architect shall, after due consultation with the Employer and the Contractor, decide as soon as possible whether or not the variation shall be carried out. If the Architect decides that the variation shall be carried out, he shall issue a Variation Order clearly identified as such in accordance with the Contractor's submission or as modified by agreement.

If the Architect and the Contractor are unable to agree the adjustment of the Contract Price, the provisions of Sub-Clause 13.2.2 shall apply.

13.2.2 Disagreement on Adjustment of the Contract Price

If the Contractor and the Architecture unable to agree on the adjustment of the Contract Price, the adjustment shall be determined in accordance with the rates specified in the Bills of Quantities or Schedule of Daywork Prices. If the rates contained in the Bills of Quantities or Dayworks Prices are not directly applicable to the specific work in question, suitable rates shall be established by the Architect reflecting the level of pricing in the Dayworks Prices. Where rates are not contained in the said Prices, the amount shall be such as is in all the circumstances reasonable, reflecting a market price. Due account shall be taken of any over-or under-recovery of overheads by the Contractor in consequence of the variation. The Contractor shall also be entitled to be paid:

a) The cost of any partial execution of the Works rendered useless by any such variation,
b) The cost of making necessary alterations to Plant already manufactured or in the course of manufacture or of any work done that has to be altered in consequence of such a variation,
c) any additional costs incurred by the Contractor by the disruption of the progress of the Works as detailed in the Programme, and
d) the net effect of the Contractor's finance costs, including interest, caused by the variation.

The Architect shall on this basis determine the rates or prices to enable on-account payment to be included incertificates of payment.

13.2.3 Contractor to Proceed

On receipt of a Variation Order, the Contractor shall forth with proceed to carry out the variation and be bound to these Conditions in so doing as if such variation was stated in the Contract. The work shall not be delayed pendingthe granting of an extension of the Time for Completion or an adjustment to the Contract Price under Sub- Clause31.3.

13.3 Value Engineering

13.3.1 The Contractor may, at any time, submit to the Architect written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Procuring Entity of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Procuring Entity of the completed Works, or
(iv) otherwise be of benefit to the Procuring Entity.

13.3.2 The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3[Variation Procedure].

13.2.3 If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

a) The Contractor shall design this part,

b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply, and

c) if this change results in a reduction in the contract value of this part, the Architect shall proceed in accordancewith Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall behalf (50%) of the difference between the following amounts:

   i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause
   13.8 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost], and

   ii) the reduction (if any) in the value to the Procuring Entity of the varied works, taking account of anyimprovement in quality, anticipated life or operational efficiencies.

13.3.4 However, if the amount established in item 13.2.3 (c) (i) is less than amount established in item 13.2.3 (c (ii), thereshall not be a fee. However, if the amount established in item 13.2.3 (c) (i) is more than amount established in item
13.2.3 (c (ii), it shall result in a price variation to the Procuring Entity.

13.4 Variation Procedure for Value Engineering proposal

13.4.1 If the Architect requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soonas practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

a) A description of the proposed work to be performed and a programme for its execution,

b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3[Programme] and to the Time for Completion, and

c) the Contractor's proposal for evaluation of the Variation.

13.4.2 The Architect shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Project Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

13.4.3 Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by theArchitect to the Contractor, who shall acknowledge receipt.

13.4.4 Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Architectinstructs or approves otherwise in accordance with this Clause.

13.5 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustmentis agreed, approved or determined as stated above, the amount payable in each of the

applicable currencies shall bespecified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

13.6 Provisional Sums

13.6.1 Each Provisional Sum shall only be used, in whole or in part, in accordance with the Architect instructions, and theContract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts,for the work, supplies or services to which the Provisional Sum relates, as the Architect shall have instructed. For each Provisional Sum, the Architect May instruct:

a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valuedunder Sub-Clause 13.3 [Variation Procedure]; and/or

b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined inClause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:

i) The actual amounts paid (or due to be paid) by the Contractor, and

ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying therelevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentagerate stated in **the Special Conditions of Contract** shall be applied.

13.6.2 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

13.7 Dayworks

13.7.1 For work of a minor or incidental nature, the Architect may instruct that a Variation shall be executed on a dayworkbasis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

13.7.2 Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

13.7.3 Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall delivereach day to the Architect accurate statements induplicate which shall include the following details of the resourcesused in executing the previous day's work:

a) The names, occupations and time of Contractor's Personnel,
b) the identification, type and time of Contractor's Equipment and Temporary Works, and
c) the quantities and types of Plant and Materials used.

13.7.4 One copy of each statement will, if correct, or when agreed, be signed by the Architect and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.8 Adjustments for Changes in Legislation

13.8.1 The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change inthe Laws of Kenya (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

13.8.2 If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changesin the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4[Extension of Time for Completion], and
b) payment of any such Cost, which shall be included in the Contract Price.

13.8.3 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agreeor determine these matters.

13.8.4 Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay hasalready been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.9 Adjustments for Changes in Cost

13.9.1 In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

13.9.2 If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labor, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulaeprescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by theprovisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included a mounts to cover the contingency of other rises and falls in costs.

13.9.3 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

Price Adjustment Formula

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 Im/Io
where:
P is the adjustment factor for the portion of the Contract Price payable.
A and **B** are coefficients **specified in the SCC,** representing then on 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 **Io**c is the index prevailing 30 days before Bid opening for inputs payable.

NOTE: The sum of the two coefficients A and B should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulae for all currencies, since coefficient A, for the non adjustable portion of the payments, is a very approximate figure (usually 0.15) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency are added to the Contract Price.

13.9.4 The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. Forth is purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of thesource; although these dates (and thus these values) may not correspond to the base cost indices.

13.9.5 In cases where the "currency of index" is not the relevant currency of payment, each index shall be converted intothe relevant currency of payment at the selling rate, established by the Central Bank of Kenya, of this relevant currency on the above date for which the index is required to be applicable.

13.9.6 Until such time as each current cost index is available, the Architect shall determine a provisional

index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

13.9.7 If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices there after shallbe made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favorable to the Procuring Entity.

13.9.8 The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or in applicable, as a result of Variations.

14. CONTRACT PRICE AND PAYMENT

14.1 The Contract Price

14.1.1 Unless otherwise stated in the Special Conditions:

a) The value of the payment certificate shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;

b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];

c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:

i) of the Works which the Contractor is required to execute, or

ii) for the purposes of Clause12 [Measurement and Evaluation]; and

d) the Contractor shall submit to the Engineer, within 30 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Architect may take account of the break down whenpreparing Payment Certificates but shall not be bound by it.

14.1.2 Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall not be exempt from the paymentof import duties and taxes upon importation.

14.2 Advance Payment

14.2.1 The Procuring Entity shall make an advance payment, as an interest-free loan for mobilization and cashflow support, when the Contractor submits a guarantee in accordance with this Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the **Special Conditions of Contract.**

14.2.2 Unless and until the Procuring Entity receives this guarantee, or if the total advance payment is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.

14.2.3 The Architect shall deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Procuring Entity receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institutions elected by the Contractor and shall be inthe form annexed to the Special Conditions or in another form approved by the Procuring Entity.

14.2.4 The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid,but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advancepayment has been repaid.

14.2.5 Unless stated otherwise in **the Special Conditions of Contract**, the advance payment shall be repaid

through percentage deductions from the interim payments determined by the Architect in accordance with Sub-Clause 14.6[Issue of Interim Payment Certificates], as follows:

a) Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and

b) deductions shall be made at the amortization rate stated in the **Special Conditions of Contract** of the amountof each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until suchtime as the advance payment has been repaid; provided that the advance payment shall be completely repaidprior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

14.2.6 If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or priorto termination under Clause 15 [Termination by Procuring Entity], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Procuring Entity], except for Sub-Clause 14.2.7 [Procuring Entity's Entitlement to Termination for Convenience], payable by the Contractor to the Procuring Entity.

14.3 Application for Interim Payment Certificates

14.3.1 The Contractor shall submit a Statement (in number of copies indicated in the **Special Conditions of Contract**) tothe Architect after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers itself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause4.21 [Progress Reports].

14.3.2 The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);

b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];

c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in **the Special Conditions of Contract** to the total of the above amounts, until the amount so retained by the Procuring Entity reaches the limit of Retention Money (if any) stated **in the Special Conditions of Contract**;

d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];

e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant andMaterials intended for the Works];

f) any other additions or deductions which may have become due under the Contractor otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and

g) the deduction of amounts certified in all previous Payment Certificates.

14.4 Schedule of Payments

14.4.1 If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid,then unless otherwise stated in this schedule:

a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];

b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and

c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revisedinstalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

14.4.2 If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5 Plant and Materials intended for the Works

14.5.1 If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3,
(i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

14.5.2 If the lists referred to in sub-paragraphs (b) (i) or (c) (i) below are not included in the Schedules, this Sub-Clause shall not apply.

14.5.3 The Architect shall determine and certify each addition if the following conditions are satisfied:

a) The Contractor has:
   i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
   (ii) submitted statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

   and either:

b) the relevant Plant and Materials:
   i) are those listed in the Schedules for payment when shipped,
   ii) have been shipped to Kenya, enroute to the Site, in accordance with the Contract; and
   iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Architect together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Procuring Entity in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration; or

c) the relevant Plant and Materials:
   i) are those listed in the Schedules for payment when delivered to the Site, and
   ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration and appear to be in accordance with the Contract.

14.5.4 The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Architect determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

14.5.5 The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

14.6 Issue of Interim Payment Certificates

14.6.1 No amount will be certified or paid until the Procuring Entity has received and approved the Performance Security. Thereafter, the Architect shall, within 30 days after receiving a Statement and supporting documents, deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate which shall state the amount which the Architect fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Architect on the Statement if any.

14.6.2 However, prior to issuing the Taking-Over Certificate for the Works, the Architect shall not be bound

to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated **in the Special Conditions of Contract**. In this event, the Architect shall give notice to the Contractor accordingly.

14.6.3 An Interim Payment Certificate shall not be withheld for any other reason, although:

a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or

b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and hadbeen so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

4.6.4 The Architect may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Architect acceptance, approval, consent or satisfaction.

14.7 Payment

14.7.1 The Procuring Entity shall pay to the Contractor:

a) The advance payment shall be paid within 60 days after signing of the contract by both parties or within 60 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub- Clause 14.2 [Advance Payment], whichever is later;

b) The amount certified in each Interim Payment Certificate within 60 days after the Architect Issues Interim Payment Certificate; and

c) the amount certified in the Final Payment Certificate within 60 days after the Procuring Entity Issues InterimPayment Certificate; or after determination of any disputed amount shown in the Final Statement in accordance with Sub-Clause 16.2 [Termination by Contractor].

14.7.2 Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, inthe payment country (forth is currency) specified in the Contract.

14.8 Delayed Payment

14.8.1 If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall beentitled to receive financing charges (simple interest) monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b) of the date on which any Interim Payment Certificate is issued.

14.8.2 These financing charges shall be calculated at the annual rate of three percentage points above the mean rate of theCentral Bank in Kenya of the currency of payment, or if not available, the interbank offered rate, and shall be paidin such currency.

14.8.3 The Contractor shall be entitled to this payment without formal notice and certification, and without prejudice to any other right or remedy.

14.9 Payment of Retention Money

14.9.1 When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Architect for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or partof the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall behalf (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

14.9.2 Promptly after the latest of the expiry dates of the Defects Liability Periods, the outstanding balance of the Retention Money shall be certified by the Architect for payment to the Contractor. If a Taking-Over Certificate was issued fora Section, a proportion of the second half of the Retention Money shall be

certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall behalf (50%) of the proportioncalculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

14.9.3 However, if any work remains to be executed under Clause 11 [Defects Liability], the Architects hall be entitled towithhold certification of the estimated cost of this work until it has been executed.

14.9.4 When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause13.8 [Adjustments for Changes in Cost].

14.9.5 Unless otherwise stated in the Special Conditions, when the Taking-Over Certificate has been issued for the Worksand the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a Retention Money Security guarantee, in the form annexed to the Special Conditions or in another form approved by the Procuring Entity and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money.

14.9.6 The Procuring Entity shall return the Retention Money Security guarantee to the Contractor within 14 days after receiving a copy of the Completion Certificate.

14.10 Statement at Completion

14.10.1 Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to theArchitect three copies of a Statement at completion with supporting documents, in accordance with Sub- Clause
14.3 [Application for Interim Payment Certificates], showing:

a) the value of all work done in accordance with the Contract up to the date stated in the Taking-OverCertificate for the Works,
b) any further sums which the Contractor considers to be due, and
c) an estimate of any other amounts which the Contractor considers will become due to him under theContract. Estimated amounts shall be shown separately in this Statement at completion.

14.10.2 The Architect shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

14.11.1 Within 60 days after receiving the Completion Certificate, the Contractor shall submit, to the Engineer, six copiesof a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

a) The value of all work done in accordance with the Contract, and
b) Any further sums which the Contractor considers to be due to him under the Contractor otherwise.

14.11.2 If the Architect disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Architect may reasonably require within 30 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submitto the Architect the final statement as agreed. This agreed statement is referred to in these Conditions as the “FinalStatement”.

14.11.3 However, if, following discussions between the Architect and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Architect shall deliver to the Procuring Entity (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the ProcuringEntity (with a copy to the Engineer) a Final Statement.

14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the

Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

14.13.1 Within 30days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Architect shall deliver, to the Procuring Entity and to the Contractor, the Final Payment Certificate which shall state:

a) The amount which he fairly determines is finally due, and
b) After giving credit to the Procuring Entity for all amounts previously paid by the Procuring Entity and for allsums to which the Procuring Entity is entitled, the balance (if any) due from the Procuring Entity to the Contractor or from the Contractor to the Procuring Entity, as the case may be.

14.13.2 If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Architect shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 30 days, the Architect shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Procuring Entity's Liability

14.14.1 The Procuring Entity shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expresslyfor it:

a) in the Final Statement and also,
b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

14.14.2 However, this Sub-Clause shall not limit the Procuring Entity's liability under his indemnification obligations, or the Procuring Entity's liability in any case of fraud, deliberate default or reckless misconduct by the Procuring Entity.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. Ifmore than one currency is so named, payments shall be made as follows:

a) If the Accepted Contract Amount was expressed in Local Currency only:
   i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
   ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
   iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub- paragraph (a) (i) above;
b) payment of the damages specified in the Special Conditions of Contract, shall be made in the currencies andproportions specified in the Schedule of Payment Currencies;
c) other payments to the Procuring Entity by the Contractor shall be made in the currency in which the sum wasexpended by the Procuring Entity, or in such currency as may be agreed by both Parties;
d) if any amount payable by the Contractor to the Procuring Entity in a particular currency exceeds the sum payable by the Procuring Entity to the Contractor in that currency, the Procuring Entity may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those

prevailing onthe Base Date and determined by the Central Bank of Kenya.

15. TERMINATION BY PROCURING ENTITY

15.1 Notice to correct any defects or failures

If the Contractor fails to carry out any obligation under the Contract, the Architect may by notice require theContractor to make good the failure and to remedy it within 30 days.

15.2 Termination by Procuring Entity

15.2.1 The Procuring Entity shall be entitled to terminate the Contract if the Contractor breaches the contractbased on following circumstances which shall include but not limited to:

a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1[Notice to Correct],

b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of hisobligations under the Contract,

c) without reasonable excuse fails:

i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or

ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work],within 30 days after receiving it,

d) subcontracts the major part or whole of the Works or assigns the Contract without the consent of theProcuring Entity,

e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to anyof these acts or events, or

f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or otherthing of value, as an induce mentor reward:

i) for doing or for bearing to do any action in relation to the Contract, or

ii) for showing or for bearing to show favor or disfavor to any person in relation to the Contract, or

iii) if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) toany person any such induce mentor reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination, or

g) If the contract or repeatedly fails to remedy delivers defective work,

h) based on reasonable evidence, has engaged in Fraud and Corruption as defined in paragraph 2.2 of theAppendix B to these General Conditions, in competing for or in executing the Contract.

15.2.2 In any of these events or circumstances, the Procuring Entity may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub- paragraph (e) or (f) or
(g) or (h), the Procuring Entity may by notice terminate the Contract immediately.

15.2.3 The Procuring Entity's election to terminate the Contract shall not prejudice any other rights of the Procuring Entity,under the Contractor otherwise.

15.2.4 The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to complyimmediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and
(ii) for the protection of life or property or for the safety of the Works.

15.2.5 After termination, the Procuring Entity may complete the Works and/ or arrange for any other entities to do so. TheProcuring Entity and these entities may then use any Goods, Contractor's Documents and other design documentsmade by or on behalf of the Contractor.

15.2.6 The Procuring Entity shall then give notice that the Contractor's Equipment and Temporary Works will

be releasedto the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Procuring Entity, these items may be sold by the Procuring Entity in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determinethe value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, theProcuring Entity may:

a) Proceed in accordance with Sub-Clause 2.5 [Procuring Entity's Claims],
b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Procuring Entity, have been established, and/ or

c) recover from the Contractor any losses and damages incurred by the Procuring Entity and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation atDate of Termination]. After recovering any such losses, damages and extra costs, the Procuring Entity shall pay any balance to the Contractor.

15.5 Procuring Entity's Entitlement to Termination for Convenience

The Procuring Entity shall be entitled to terminate the Contract, at any time at the Procuring Entity's convenience,by giving notice of such termination to the Contractor. The termination shall take effect 30 days after the later of the dates on which the Contractor receives this notice or the Procuring Entity returns the Performance Security. The Procuring Entity shall not terminate the Contract under this Sub-Clause in order to execute the Works itself orto arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor]. After this termination, the Contractor shall proceed inaccordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

15.6 Fraud and Corruption

The Contractor shall ensure compliance with the Kenya Government's Anti-Corruption Laws and its prevailing sanctions.

15.7 Corrupt gifts and payments of commission

15.7.1 The Contractor shall not;

a) Offer or give or agree to give to any person in the service of the Procuring Entity any gift or consideration ofany kind as an inducement or reward for doing or for bearing to door for having done or for borne to do any act in relation to the obtaining or execution of this or any other Contract for the Procuring Entity or for showingor for bearing to show favor or disfavor to any person in relation to this or any other contract for the ProcuringEntity.
b) Enter into this or any other contract with the Procuring Entity in connection with which commission has beenpaid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment there of have been disclosed in writing to the Procuring Entity.

15.7.2 Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the provisions of the Public Procurement and Asset Disposal Act (2015) and the Anti-Corruption and Economic Crimes Act (2003) of the Laws of Kenya.

16. SUSPENSION AND TERMINATION BY CONTRACTOR

16.1 Contractor's Entitlement to Suspend Work

16.1.1 If the Architect fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or Sub- Clause 14.7 [Payment],or not receiving instructions that would enable the contractor to proceed with the works inaccordance with the program, the Contractor may, after giving not less than 30 days' notice to the Procuring Entity,suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

16.1.2 The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [DelayedPayment] and to termination under Sub-Clause 16.2 [Termination by Contractor].

16.1.3 If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevantSub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

16.1.4 If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extensionof Time for Completion], and
b) payment of any such Cost-plus profit, which shall be included in the Contract Price.

16.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] toagree or determine these matters.

16.3 Termination by Contractor

16.3.1 The Contractor shall be entitled to terminate the Contract if:

a) the Architect fails, within 60 days after receiving a Statement and supporting documents, to issue the relevantPayment Certificate,
b) the Contractor does not receive the amount due under an Interim Payment Certificate within 90 days after theexpiry of the time stated in Sub-Clause1 4.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Procuring Entity's Claims]),
c) the Procuring Entity substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
d) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
e) the Procuring Entity becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
f) the Contractor does not receive the Architect instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].

16.3.2 In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Procuring Entity, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

16.3.3 The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, underthe Contractor otherwise.

16.4 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Procuring Entity's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Paymentand Release] has taken effect, the Contractor shall promptly:

a) cease all further work, except for such work as may have been instructed by the Architect for

the protectionof life or property or for the safety of the Works,
b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has receivedpayment, and
c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.5 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the ProcuringEntity shall promptly:
a) Return the Performance Security to the Contractor,
b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of thistermination.

17. RISK AND RESPONSIBILITY

17.1 Indemnities

17.1.1 The Contractor shall indemnify and hold harmless the Procuring Entity, the Procuring Entity's Personnel, and theirrespective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:
a) Bodily injury, sickness, disease or death, of any person what so ever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful actor breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and
b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage orloss is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

17.1.2 The Procuring Entity shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents,and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i),
(ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property], unless and to the extent that any such damage or loss is attributable to any negligence, willful actor breach of the Contract by the contractor, the contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any ofthem.

17.2 Contractor's Care of the Works

17.2.1 The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Procuring Entity. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Procuring Entity.

17.2.2 After responsibility has accordingly passed to the Procuring Entity, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

17.2.3 If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

17.2.4 The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Procuring Entity's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Procuring Entity's Risks] below, in so far as they directlyaffect the execution of the Works in Kenya, are:

a) War hostilities (whether war be declared or not),
b) rebellion, riot, commotion or disorder, terrorism, sabotage by persons other than the Contractor's Personnel,
c) explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to theContractor's use of such explosives, radiation or radio-activity,
d) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds,
e) use or occupation by the Procuring Entity of any part of the Permanent Works, except as may be specified inthe Contract,
f) design of any part of the Works by the Procuring Entity's Personnel or by others for whom the ProcuringEntity is responsible, and
g) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

17.4 Consequences of Procuring Entity's Risks

17.4.1 If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Architect and shall rectify thisloss or damage to the extent required by the Engineer.

17.4.2 If the Contractor suffers delay and/ or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension ofTime for Completion], and
(b) Payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (e)and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Accrued Costs shall be payable.

17.4.3 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations]to agree or determine these matters.

17.5 Intellectual and Industrial Property Rights

17.5.1 In this Sub-Clause, “infringement” shall refer to an infringement (or alleged infringement) of any patent, registereddesign, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and “claim” shall refer to a claim (or proceedings pursuing a claim) alleging an infringement.

17.5.2 Whenever a Party does not give notice to the other Party of any claim within 30 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

17.5.3 The Procuring Entity shall indemnify and hold the Contractor harmless against and from any claim alleging aninfringement which is or was:

a) An un avoidable result of the Contractor's compliance with the Contract, or
b) A result of any Works being used by the Procuring Entity:
   i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
   ii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to theContractor prior to the Base Date or is stated in the Contract.

17.5.4 The Contractor shall indemnify and hold the Procuring Entity harmless again stand from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which theContractor is responsible.

17.5.5 If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

17.5.6 For operation and maintenance of any plant or equipment installed, the contractor shall grant a non-exclusive and non-transferable license to the Procuring Entity under the patent, utility models ,or other intellectual rights owned by the contractor or a third party from whom the contract or has received the rights to grant sub-licenses and shall also grant to the Procuring Entity a non-exclusive and non-transferable rights (without the rights to sub-license) to use the know-how and other technical information disclosed to the contract or under the contract. Nothing contained here-in shall be construed as transferring ownership of any patent, utility model, trademark, design, copyright, know-how or other intellectual rights from the contractor or any other third party to the Procuring Entity.

17.6 Limitation of Liability

17.6.1 Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contractor for any in director consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b) [Consequences of Procuring Entity's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

17.6.2 The total liability of the Contractor to the Procuring Entity, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Procuring Entity's Equipment and Free- Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in **the Special Conditions of Contract**, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

17.6.3 This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

17.7 Use of Procuring Entity's Accommodation/Facilities

17.7.1 The Contractor shall take full responsibility for the care of the Procuring Entity provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

17.7.2 If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Procuring Entity is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18. INSURANCE

18.1 General Requirements for Insurances

18.1.1 In this Clause, “insuring Party” means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

18.1.2 Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Procuring Entity. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.3 Wherever the Procuring Entity is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.4 If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as

though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namelyin addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Procuring Entity shall act for Procuring Entity's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealingswith the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditionsstipulated in the policy.

18.1.5 Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

18.1.6 The relevant insuring Party shall, within the respective periods stated in **the Special Conditions of Contract**
(calculated from the Commencement Date), submit to the other Party:

a) Evidence that the insurances described in this Clause have been affected, and
b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor'sEquipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

18.1.7 When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

18.1.8 Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

18.1.9 Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or at tempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

18.1.10 If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contractor fails to provide satisfactory evidence and copies of policies in accordance with this Sub- Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

18.1.11 Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Procuring Entity,under the other terms of the Contractor otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Procuring Entity.

18.1.12 Procuring Entity in accordance with these obligations, liabilities or responsibilities. However, if the insuring Partyfails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by theinsuring Party.

18.1.13 Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Procuring Entity's Claims] or Sub- Clause 20.1 [Contractor's Claims], as applicable.

18.1.14 The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works and Contractor's Equipment

18.2.1 The insuring Party shall insure the Works, Plant, Materials band Contractor's Documents for not less than the fullreinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

18.2.2 The insuring Party shall maintain this insurance to provide cover until the date of issue of the

Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

18.2.3 The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

18.2.4 Unless otherwise stated in the Special Conditions, insurances under this Sub-Clause:

a) Shall be effected and maintained by the Contractor as insuring Party,

b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,

c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks],

d) shall also cover, to the extent specifically required in the tendering documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Procuring Entity of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Procuring Entity's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated **in the Special Conditions** of Contract (if an amount is not so stated, this sub-paragraph (d) shall not apply), and

e) may however exclude loss of, damage to, and reinstatement of:

i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),

ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,

iii) a part of the Works which has been taken over by the Procuring Entity, except to the extent that the Contractor is liable for the loss or damage, and

iv) Goods while they are not in Kenya, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

18.2.5 If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Procuring Entity, with supporting particulars. The Procuring Entity shall then (i) be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

18.3 Insurance against Injury to Persons and Damage to Property

18.3.1 The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

18.3.2 This insurance shall be for a limit per occurrence of not less than the amount stated in **the Special Conditions of Contract**, with no limit on the number of occurrences. If an amount is not stated in the **Special Conditions of Contract**, this Sub-Clause shall not apply.

18.3.3 Unless otherwise stated in the Special Conditions, the insurances specified in this Sub-Clause:

a) Shall be effected and maintained by the Contractor as insuring Party,

b) shall be in the joint names of the Parties,

c) shall be extended to cover liability for all loss and damage to the Procuring Entity's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and

d) may however exclude liability to the extent that it arises from:

i) the Procuring Entity's right to have the Permanent Works executed on, over, under, in or

ii) through any land, and to occupy this land for the Permanent Works,

iii) damage which is an unavoidable result of the Contractor's obligations to execute the
iv) Works and remedy any defects, and
v) a cause listed in Sub-Clause 17.3 [Procuring Entity's Risks], except to the extent that cover is available at commercially reasonable terms.

18.4 Insurance for Contractor's Personnel

18.4.1 The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

18.4.2 The insurance shall cover the Procuring Entity and the Architect against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Procuring Entity or of the Procuring Entity's Personnel.

18.4.3 The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19. FORCE MAJEURE

19.1 Definition of Force Majeure

19.1.1 In this Clause, "Force Majeure" means an exceptional event or circumstance:
a) Which is beyond a Party's control,
b) Which such Party could not reasonably have provided against before entering into the Contract,
c) which, having arisen, such Party could not reasonably have avoided or overcome, and
d) which is not substantially attributable to the other Party.

19.1.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:
a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and
e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2 Notice of Force Majeure

19.2.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

19.2.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

19.2.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3 Duty to Minimize Delay

Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure. A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4 Consequences of Force Majeure

19.4.1 If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers

delay and/ or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extensionof Time for Completion], and

b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definitionof Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in Kenya, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub- Clause18.2 [Insurance for Works and Contractor's Equipment].

19.4.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] toagree or determine these matters.

19.5 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majureon terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

19.6 Optional Termination, Payment and Release

19.6.1 If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reasonof Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multipleperiods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

19.6.2 Upon such termination, the Architect shall determine the value of the work done and issue a Payment Certificatewhich shall include:

a) theamountspayableforanyworkcarriedoutforwhichapriceisstatedintheContract;

b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity’s disposal;

c) other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractorin the expectation of completing the Works;

d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and

e) the Cost of repatriation of the Contractor's staff and lab or employed wholly in connection with the Works atthe date of termination.

19.7 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties(including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Partiesto fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

a) The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and

b) The sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20. SETTLEMENT OF CLAIMS AND DISPUTES

20.1 Contractor's Claims

20.1.1 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 Engineer, 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.

20.1.2 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.

20.1.3 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.

20.1.4 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 Engineer. Without admitting the Procuring Entity's liability, the Architect 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 Architect to inspect all these records and shall (if instructed) submit copies to the Engineer.

20.1.5 Within 42days 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 Engineer, the Contractor shall send to the Architect 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 Architect 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 Engineer.

20.1.6 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 Architect and approved by the Contractor, the Architect 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.

20.1.7 Within the above defined period of 42 days, the Architect shall proceed in accordance with Sub-Clause 3.5 [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.

20.1.8 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.

20.1.9 If the Architect does not respond within the time frame defined in this Clause, either Party may consider that the claim is rejected by the Architect and any of the Parties may refer the dispute for amicable settlement in accordance with Clause 20.3.

20.1.10 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 prejudicedproper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause 20.3.

20.2 Procuring Entity's Claims

20.2.1 If the Procuring Entity considers itself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Procuring Entity or the Architect shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Procuring Entity's Equipment and Free-Issue Materials], or for other services requested by the Contractor.

20.2.2 The notice shall be given as soon as practicable and no longer than 30 days after the Procuring Entity became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

20.2.3 The particulars shall specify the Clause or other basis of the claim and shall include substantiation of the amount and/or extension to which the Procuring Entity considers itself to be entitled in connection with the Contract. The Architect shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Procuring Entity is entitled to be paid by the Contractor, and/ or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].

20.2.4 This amount may be included as a deduction in the Contract Price and Payment Certificates. The Procuring Entityshall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

20.3 Amicable Settlement

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 20.1 above should move to commence arbitration after 60 days from the day on which a notice of a claim was given, even if no attempt at an amicable settlement has been made.

20.4 Matters that may be referred to arbitration

Notwithstanding anything stated herein the following matters may be referred to arbitration before the practicalcompletion of the Works or abandonment of the Works or termination of the Contract by either party:

a) Whether or not the issue of an instruction by the Architect is empowered by these Conditions.
b) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
c) Any dispute arising in respect risks arising from matters referred to in Clause 17.3 and Clause 19.
d) All other matters shall only be referred to arbitration after the completion or alleged completion of the Worksor termination or alleged termination of the Contract, unless the Procuring Entity and the Contractor agree otherwise in writing.

20.5 Arbitration

20.5.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.3 shall be finally settled by arbitration.

20.5.2 No arbitration proceedings shall be commenced on any claim or dispute where notice of a claim or dispute has notbeen given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.

20.5.3 Notwithstanding the issue of a notice as stated above, the arbitration of such a claim or dispute shall not commenceunless an attempt has in the first instance been made by the parties to settle such claim

or dispute amicably with orwithout the assistance of third parties. Proof of such attempt shall be required.

20.5.4 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 a ward any sums which ought to have been the subject of or included in any certificate.

20.5.5 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and reviseany 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 require mentor notice had been given.

20.5.6 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Architect from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

20.5.7 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.

20.5.7 Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, and the Architect shall not be altered by reason of any arbitration being conducted during the progress of the Works.

20.5.8 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.

20.6 Arbitration with National Contractors

20.6.1 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 Arbitratorwithin thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to beagreed 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

20.6.2 The institution written to first by the aggrieved party shall take precedence over all other institutions.

20.7 Arbitration with Foreign Contractors

20.7.1 Arbitration with foreign contractors shall be conducted in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules.

20.7.2 The place of arbitration shall be a location specified in the **SCC;** and the arbitration shall be conducted in the language for communications defined in Sub-Clause1.4 [Law and Language].

20.8 Alternative Arbitration Proceedings

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.

20.9 Failure to Comply with Arbitrator's Decision

20.9.1 The award of such Arbitrator shall be final and binding up on the parties.

20.9.2 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.

20.10 Contract operations to continue

Notwithstanding any reference to arbitration herein,

1.1.1 the parties shall continue to perform their respective obligations under the Contract unless they otherwiseagree; and

1.1.2 the Procuring Entity shall pay the Contractor any monies due the Contractor.

Section IX - Special Conditions of Contract

The following Special Conditions shall supplement the GCC. Whenever there is a conflict, the provisions

here inshall prevail over those in the GCC.

SCC REF.	SPECIAL CONDITIONS OF CONTRACT
A	Duration for implementation from commencement date shall be 8 CONSECUTIVE CALENDAR MONTHS. Commencement date shall be Project Manager's Order to Commence. The contract shall remain valid for **fifteen (15) months** from the commencement date.
B	PERFORMANCE SECURITY (BOND / GUARANTEE) (BOND / GUARANTEE) The amount of Performance Security (guarantee) shall be 10% of the accepted contract value the form of a Bank Guarantee from a reputable bank, approved by the central Bank of Kenya and acceptable to KenGen
D	Retention Money shall be 10% of the contract price. This shall be deducted in every interim payment certificate and shall be released to the contractor after the Defects Liability Period and upon remedy of all identified defects.
4.1	Commencement date shall be the Project Manager's Order to Commence
5.1	SAFETY PROCEDURES "The Contractor shall prepare and submit to Client Representative a SAFETY MANAGEMENT PLAN within 28 days after signing of the contract for Client Representative's concurrence. The Contractor shall deploy on site a qualified safety officer at all times".
5.1	The Contractor shall provide safety PPEs to all employees during execution of the works;
6.1	The Contractor to Submit Program of Works within 14 days after order to commence has been issued. Program of works to be reviewed every 14 days, clearly indicating progress and be submitted to Client Representative.
9.1	Extension of Contract not allowed unless expressly authorised by the Client upon written request by the Contractor and based on issues highlighted under GCC 8.4. In their request, the Contractor shall clearly outline the circumstances leading to delay and necessitating the request.
10.1	A Contract management meeting shall be held every 14 days or as shall be communicated in writing by the Employer's representative. Site meetings shall be held regularly on site, typically every day.
11.2	Defects Liability Period shall be 12 Months after completion of the works/contract.
13.1	Variations shall be subject to a maximum of 25% of contract price and in accordance to PPADA 2015
14.1	Payment shall be made based on completed works. Minimum amount of each Interim Payment Certificate shall be 20% of contract price.
	The Contractor shall be paid after each of the following stages of Work listed here below (subject to re- measurement by the Employer's Representative of the Work done in each stage before payment is made). The valuation for each stage shall be based on the quantities so obtained in the re-measurement and the rates in the price schedules or the Schedule of Rates.

	Advance payment: (i) Advance Payment - The client shall make an advance payment to a maximum of 10% of the project cost upon approval by KenGen management as an interest free loan for mobilisation. The payment will be made by KenGen when the contractor submits an advance payment guarantee equivalent to the advance payment from a reputable bank with a correspondent bank in Kenya. The bank should agree unconditionally and irrevocably to guarantee, as the primary obligator, the payment to KenGen on first demand without whatsoever right of objection. Unless and until KenGen receives this guarantee, this clause shall not apply. The contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by 28 days prior to the expiry date, the contractor shall extend the validity of the guarantee until the advance payment has been repaid. (ii) Recovery of advance payment - The advance payment shall be discounted from the full payment of each stage (each interim payment). **Interim Payments:** Payments shall be made in stages and in accordance with the price schedules in the bills of quantities and rates. There are Nine price schedules (1-9) and a provisional sum schedule. The contractor will be paid against any line of any of the schedules, provided the payment request is confirmed and approved by the Project Manager. However, ten percent (10%) retention fee shall be retained on each interim payment. This retention shall be paid at the end of the twelve (12) months reliability period. **Final Payment** The retained 10% of the contract price will be paid to the contractor at end of the successful completion of twelve (12) months defect's liability period. This will be the final payment to the contractor.
15.1	MINIMUM AMOUNT OF INSURANCE A. Evidence of Insurance Contractor's All Risks and WIBA B. Relevant policies Contractor's All Risks and WIBA
16.1	The Contractor shall pay liquidated damages to the Employer at the rate 0.1 per cent of the Contract price per day for each day that the actual Completion Date is later than the Intended Completion Date except in the case of any of the occurrences listed under clause 19.1.2. The Employer shall deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.
17.1	ADJUDICATION Arbitration where necessary shall be by the Chartered Institute of Arbitrators Kenya Chapter or other International body. The hourly fee for the Adjudicator shall be as determined by the Chartered Institute of Arbitrators (Kenya Branch). If the parties fail to agree upon the name of the Adjudicator, the appointment shall be made by the Chartered Institute of Arbitrators (Kenya Branch) at the request of either party.

Taxes	a) "Taxes" means all present and future taxes, levies, duties, charges, assessments, deductions or withholdings whatsoever, including any interest thereon, and any penalties and fines with respect thereto, wherever imposed, levied, collected, or withheld pursuant to any regulation having the force of law and "Taxation" shall be construed accordingly. b) Local Taxation i. Nothing in the Contract shall relieve the Contractor and/or his Sub-Contractors from their responsibility to pay any taxes, statutory contributions and levies that may be levied on them in Kenya in respect of the Contract. ii. The Contract Price shall include all applicable taxes and shall not be adjusted for any of these taxes. iii. Tax exemption granted under this Contract shall be for an official aid funded project and shall be as provided under the applicable tax laws in Kenya. iv. The Contractor shall be deemed to be familiar with the tax laws in the Employer's Country and satisfied themselves with the requirements for all taxes, statutory contributions and duties to which they may be subjected during the term of the Contract. This shall include applicable local or foreign withholding tax, excise duty, Value Added Tax (VAT), importation duties, Local government taxes, and any other taxes not mentioned herein. v. In instances where discussions are held between the Employer and the Contractor regarding tax matters, this shall not be deemed to constitute competent advice and hence does not absolve the Contractor of their responsibility in relation to due diligence on the tax issue as per (i). c) Tax Deduction i. If the Employer is required to make a tax deduction by Law, then the deduction shall be made from payments due to the Contractor and paid directly to the Kenya Revenue Authority. The Employer shall upon remitting the tax to Kenya Revenue Authority furnish the Contractor with the relevant tax deduction certificates. ii. Where payments for the Contract Price are made directly by the financiers to the Contractor, the Contractor and the financiers shall make the necessary arrangements with Employer to ensure that withholding income tax is remitted to the Kenya Revenue Authority. d) Tax Indemnity i. The Contractor shall indemnify and hold the Employer harmless from and against any and all tax liabilities, which the Employer may incur for any reason of failure by the Contractor to comply with any tax laws arising from the execution of the Contract whether during the term of the Contract or after its expiry. ii. The Contractor warrants to pay the Employer (within fourteen (14) days of demand by the Employer), an amount equal to the loss, liability or cost which the Employer determines has been (directly or indirectly) suffered by the Employer for or on account of the Contractor's Tax liability arising from the Contract. Where the amount in (ii) above remains unpaid after the end of the fourteen (14) days moratorium, the Employer shall be entitled to compensation for financing charges.

Environmental, Health & Safety Management Plan

Introduction

This section establishes appropriate processes to ensure that the work performed by KenGen's suppliers & contractors meets all requirements to occupational health and safety requirements, international safety standards, as well as all requirements freely imposed by the company.

KENGEN is certified against ISO 9001 Quality Management System, ISO 14001 Environmental Management System and ISO 45001 Occupational **Health** & Safety Management System enabling the organization to provide safe and healthy workplaces, prevent work-related injury and ill health, and continually improve its environmental and occupational health & safety performance at the workplace.

The contractor is required to maintain an environmental carry out environmental management as well as identify occupational hazards, carry out risk assessment and control the OH&S risks arising from activities and operations affecting the organization and contractor workers.

For this reason, the contractor is required to maintain an **Environmental, Health and Safety (EHS) Management System (i.e. policies, procedures etc.)** that will cover at least the following specifications.

Environmental, Health & Safety Manual

- Contractor shall develop a site specific **Environmental, Health, and Safety Manual** that describes the structured processes ensuring that environmental management, and occupational health & safety standards are ensured in all phases of the project.
- The contractor will include at least the following requirements in the EHS manual:
    i. Policy statement on environmental, health & safety commitment.
    ii. Defined roles and responsibilities for effective management of environmental management, health & safety.
    iii. An environmental, health and safety management plan(s).
    iv. The procedure & criteria for carrying out Job Safety Analysis.
    v. List of equipment & machinery to be used during the project and the criteria for maintenance and inspection.
    vi. The list of permits and licences required for effective management of the environmental, health and safety management system and for compliance to legal and other requirements.

Environmental, Health & Safety Documentation

- **EHS documents required for Tendering**

    i. The contractor to provide an environmental, health and safety management manual.
    ii. The contractor to provide the relevant training and experience of person(s) responsible for environmental, health and safety management.

- **EHS documents required before commencement of works**

i. The Environmental Management Plan and the Health & Safety Management Plan.
ii. The contractors should provide appropriate documents on training of workers on high risk jobs such work at height, electrical works and operating machinery.
iii. The contractor to provide medical examination documents of all workers prior to beginning task.
iv. The contractor to provide a specific job safety analysis for the work to be done.
v. The contractor is required to provide awareness to workers on hazards and risks exposed to at work including appropriate controls as well as relevant EHS training on emergency preparedness, response, first aid and fire emergency response. Records of awareness to be provided.
vi. The contractor to provide register of issuance of appropriate PPEs completed and duly signed by the worker.
vii. List of equipment and machinery to be used, their maintenance and inspection reports to be provided. Such include scaffolds inspection reports etc.
viii. Workers have relevant EHS training on emergency preparedness, response, first aid and fire emergency response and provide appropriate documents are available including drill reports.
ix. The contractor to provide appropriate documents on workers' insurance / medical cover including list of preferred hospitals in case of an emergency.

Environmental, Health & Safety Requirements

The contractors and suppliers must comply with the following environmental, health & safety requirements:

1. Comply with environmental, health & safety legislations in force for exercising the business activity, as well as with the internal requirements of KenGen's facilities regarding environmental and health & safety protection and any other requirements set forth by KenGen that are binding to the project and applicable to the works.
2. In general, assume and comply with the requirements of the Environmental Management System and Occupational Health & Safety Management and, in particular, with the requirements of the Specific Environmental Plan and the Occupational Health & Safety Plan prepared for carrying out the project as well as undertake the tasks of verification, inspection and control of the said Plans and undertake EHS audits as may be required.
3. The main contracting unit of the service is responsible for monitoring and supervising compliance with these specifications and may designate another person to perform the tasks by notifying the company (KenGen) of their identification in writing. The contractor will facilitate the supervision task and undertake to deliver all the documentation that may be required and to expressly and continuously inform KenGen, during the entire term of the relevant contract, about any circumstances and/or requirements pertaining to the environment, health & safety and related to the contracted services.
4. The contractor company must have proof of the relevant environmental, health & safety training of the personnel who are responsible for ensuring and complying with these requirements. KenGen will be entitled to request that the Contractor's designated EHS personnel be replaced if the former deems not to be complying satisfactorily with their duties or does not have adequate training. This request must be complied with by the contractor within as short a time as possible.
5. Immediately inform KenGen in the event that any environmental or health & safety incident or accident occurs during the service. If it is attributable to poor execution by the

contractor, then the contractor must apply the necessary corrective measures to re-establish the affected, must take charge of restoring the damage caused and must satisfy, if applicable, all fines imposed by the Authority. KenGen reserves the right to pass on to the contractor all legal actions and expenses that may originate due to a breach of environmental or health & safety obligations.

6. The contractor will, in general, adopt the appropriate preventive measures dictated by good practices of environmental, health & safety management, especially those pertaining to prevention of accidents; preventing undesired discharges of noise, vibrations, dust, liquids; ground & soil contamination; emissions of contaminants into the atmosphere; the abandonment of any type of waste; etc.
7. In order to ensure that the maximum permissible limit established by applicable standards are not exceeded, barriers against noise and/or enclosures for equipment that generate noise will be designed and built, whenever necessary and feasible.
8. Use tarpaulins (canvas) to cover trucks in which sand, rubble and any other rocky materials are transported, both within and outside of the site.
9. In the case of vehicle traffic, impose a maximum speed limit of **10 km/h** within the construction site. Minimise the movement of machinery to reduce emissions, and do not keep vehicle engines running during periods of inactivity.
10. Segregate the waste that may be generated during the construction work according to the nature and hazard rating of the same, and adequately store the waste at sites prepared for this purpose.
11. Clean and remove rubble, containers, packagings, rubbish, scrap, etc.
12. Have available all documents and records associated with the production and management of hazardous and non-hazardous waste, which show compliance with associated legal requirements.
13. Locate and signpost specific zones that are used for storing raw materials, auxiliary materials or waste or that are used for equipment and vehicle maintenance (when permitted). Adequately mark the surface area that is strictly occupied by both the construction site and auxiliary facilities, if any.
14. Use closed containers and drums for storing fuels and chemical products, if any, which must be signposted and in good condition and be accepted by KenGen. These containers or drums must have spill containment pans to prevent contamination due to possible spills or leaks.
15. Store hazardous waste in zones that are paved and have roofs (as long as the conditions allow). Furthermore, have absorbent materials and physical containment barriers available.
16. The vehicle fleet must be parked, washed and maintained in places that are adequate for such purpose, thereby preventing blocking of the driveway and avoiding the contamination of water.
17. Fires are prohibited as well as uncontrolled dumping.

NB: Non-compliance with environmental and health & safety requirements may be grounds for rescission of the work contract.

Contractors Protective Safety Equipment and Materials

- ## Responsibilities when working in KenGen facilities

Contractor Organization

- Identify the protective safety equipment (PPE) necessary for each type of hazard determined following the Job Safety Analysis.
- Inform KenGen of any new protective safety equipment (PPE) approval requirements that may arise, and of defects or malfunctions detected in the safety equipment used within their area.
- Guarantee, within its field of competence, that periodic inspections are made of the protective equipment which according to the manufacturer's instructions must be inspected by specialized personnel.
- Guarantee that workers receive proper training / information on use of PPE as necessary.
- Analyze, select and approve the PPE that, in accordance with legislation in force within its scope of application, offer the suitable protection of the worker according to the existing hazards.
- Ensure that the personnel within their unit have all the necessary PPE available for the development of their activity, and that these are in a suitable state of upkeep and use.
- Draw up and keep updated the approved PPE catalogue.

Contractor EHS Supervisor:

- Verify, applying the necessary control mechanisms that the workers under their responsibility have and use the PPE required for the performance of their work, according to provisions established in the corresponding hazard assessment.
- Manage the acquisition of approved PPE, defined in the corresponding catalogue that affects personnel under their responsibility, in addition to updates and/or replacements due to expiry or deterioration of the same.
- Provide workers under their responsibility with PPE, ensuring that the issue register is completed by the worker and kept on file.
- Provide workers with the relevant information on the conditions of use of PPE in relation to the hazards associated with their work, and the measures established for its upkeep.

Contractor Worker:

- Correctly use the PPE provided according to the instructions established by the manufacturer or the organization.
- Check / inspect all PPE used, both before and after use.
- Consult all queries regarding its correct use and maintenance.
- Immediately notify the EHS supervisor of any defect, loss, expiry, anomaly or damage to PPE used which, in their opinion, may entail a loss in its protective efficacy, and of any incompatibilities they may observe or experience during use.
- Use the PPE during the workday in activities where its use is indicated as mandatory and also where instructions have been given to do so.

SECTION X - CONTRACT FORMS

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM NO. 2 – REQUEST FOR REVIEW

FORM No. 3-LETTEROF AWARD

FORM No. 4 - CONTRACT AGREEMENT

FORM No. 5 - PERFORMANCE SECURITY [Option 1 - Unconditional Demand Bank

Guarantee]FORM No. 6- PERFORMANCE SECURITY [Option 2– Performance Bond] FORM No. 7 - ADVANCE PAYMENT SECURITY FORM

No. 8 - RETENTION MONEY SECURITY

FORM No 1: NOTIFICATION OF INTENTION TOAWARD OF CONTRACT

This Notification of Award shall be sent to each Tenderer that submitted a Tender and was not successful. 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 allTenderers 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 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)* 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. Thetransmission 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 by submitting a Procurement-relatedComplaint in relation to the decision to award the contracts.

   a) The successful tenderers

   i) Name of successful Tender _____

   ii) Address of the successful Tender _____

   _____

   iii) Contract price of the successful Tender Kenya Shillings _____(in words _____)

   b) The reasons for your tender being unsuccessful are as follows:

   c) Other Tenderers

   Names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as wellas the Tender price as read out.

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 dead line 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 adebriefing 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 fordebriefing 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*]

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 inwriting 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 providethe debriefing as soon as practicable, and normally no later than fifteen (15) Days from the date of publication ofthe Contract Award Notice.

6. How to make a complaint

a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, [*insertdate*] (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 itsRegulations available from the Website www.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: _____

FORM NO. 2- REQUEST FOR REVIEW

FORM FOR REVIEW (r.203(1))

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO……..OF…….….20……..

BETWEEN

……..…….APPLICANTAND

……RESPONDENT (Procuring Entity)

Request for review of the decision of the…… (Name of the Procuring Entity of ……dated the…day of ……20 ..... in the matter of Tender No…….….of ……..20….. 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 of ……...20….……

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, asgiven 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 here by accepted by .....*(name of Procuring Entity)*.

You are requested to furnish the Performance Security within in accordance with the Conditions of Contract, using, for thatpurpose, 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 "theContractor"), 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 Worksand the remedying of any defects there in,

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 Notification of Award
   b) the Form 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 here by 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 here by covenants to pay the Contractor in consideration of the execution and completion of theWorks and the remedying of defects there in, 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.

INWITNESS where of the parties here to have caused this Agreement to be executed in accordance with the Laws ofKenya 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, here by 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 finalproduct.*

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 extensionof 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 andproportions 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 there to, which to the extent here in provided for, are by reference made part here of and are here in after 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 there under, the Surety may promptly remedy the default, or shall promptly:

   a) Complete the Contract in accordance with its terms and conditions; or

   b) 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 whichthe 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 Contractorunder the Contract, less the amount properly paid by Procuring Entity to Contractor; or

   c) Pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with itsterms 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 here in or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.

6. In testimony whereof, the Contractor has here unto set his hand and affixed his seal, and the Surety has caused thesepresents to be sealed with his corporate seal duly at tested 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, here by 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 demanditself 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 amountwhich 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 accountnumber 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 ,2 ,[2] whichever is earlier. Consequently, any 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 finalproduct.*

[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 theContract.*

[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 shallbe 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 thelimit 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 thesecond 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 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 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 there in.

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'sbank].*

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.*

[1] *The Guarantor shall insert an amount representing the amount of the second half of the Retention Money.*

[2] *Insert 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

(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

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 pursuant to Regulation 13 (2A) and 13 (6) of the Companies (Beneficial Ownership Information) Regulations, 2020. 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 legal person (tenderer) or arrangements or a natural person on whose behalf a transaction is conducted, and includes those persons who exercise ultimate effective control over a legal person (Tenderer) or arrangement.

Tender Reference No.:____[*insert identification no*]Name of the Tender Title/Description:__*[insert name of the assignment]* to:

________________________________*[insert complete name of Procuring Entity]*

In response to the requirement in 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 optionsthat are not applicable]*

I) We here by provide the following beneficial ownership information.

etails of Beneficial ownership

	Details of all Beneficial Owners		**% of sharesa person holds in the company Directly or indirectly**	**% of voting rights a personholds in the company**	**Whether a person directly or indirectly holds a right to appoint or remove a member of the board ofdirectors of the company or an equivalent governing body of the Tenderer** (Yes / No)	**Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)**
1.	Full Name		Directly------ ----- % of shares Indirectly---- ------ % of shares	Directly……… …….% of voting rights Indirectly--------- % of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes ----- No---- 2. Is this right held directly or indirectly?: Direct……………… … Indirect……………… …	**2.** Exercises significant influence or control over the Company body of the Company (tenderer) Yes -----No---- 3. Is this influence orcontrol exercised directly or indirectly? Direct…………. Indirect…………
	National identitycard number or Passport number					
	Personal Identification Number (where applicable)					
	Nationality					
	Date of birth *[dd/mm/yyyy]*					
	Postal address					
	Residential address					
	Telephone number					
	Email address					

	Occupation or profession					
2.	Full Name		Directly------- ----- % of shares	Directly……. …….% of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing	1. Exercises significant influenceor control over the Company body of
	National identitycard number or Passport number					
	Details of all Beneficial Owners		**% of sharesa person holds in the company Directly or indirectly**	**% of voting rights a personholds in the company**	**Whether a person directly or indirectly holds a right to appoint or remove a member of the board ofdirectors of the company or an equivalent governing body of the Tenderer** (Yes / No)	**Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)**
	Personal Identification Number (where applicable)		Indirectly------- ------ % of shares	Indirectly-------- % of voting rights	body of the Tenderer: Yes ----- No---- 2. Is this right helddirectly or indirectly?: Direct…… … Indirect…… ...	the Company (tenderer) Yes -----No---- 2. Is this influence orcontrol exercised directly or indirectly? Direct…….. Indirect……
	Nationality(ies)					
	Date of birth *[dd/mm/yyyy]*					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					
3. **e t c.**						

II) Am fully aware that beneficial ownership information above shall be reported to the Public Procurement Regulatory Authority together with other details in relation to contract awards and shall be maintained in the Government Portal, published and made publicly available pursuant to Regulation 13(5) of the Companies (Beneficial Ownership Information) Regulations, 2020.(Notwithstanding this paragraph Personally Identifiable Information in line with the Data Protection Act shall not be published or made public). *Note that Personally Identifiable Information (PII) is defined as any information that can be used to distinguish one person from another and can be used to de-anonymize previously anonymous data. This information includes National identity card number or Passport number, Personal Identification Number, Date of birth, Residential address, email address and Telephone number*.

III) In determining who meets the threshold of who a beneficial owner is, the Tenderer must consider a natural person who inrelation to the company:

(a) holds at least ten percent of the issued shares in the company either directly or indirectly;

(b) exercises at least ten percent of the voting rights in the company either directly or indirectly;

(c) holds a right, directly or indirectly, to appoint or remove a director of the company; or

(d) exercises significant influence or control, directly or indirectly, over the company.

IV) What is stated to herein above is true to the best of my knowledge, information and belief.

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 dulyauthorized to sign the Tender]*

Designation 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 this..... [insert date of signing] day of .. [Insert month], [insert year]

Bidder Official Stamp