



**TENDER NO. GF-KEMSA-CONST - 2/OIT
6/2017-2018**

**TENDER FOR PROPOSED CONSTRUCTION OF
KEMSA MODERN WAREHOUSE & OFFICE
BLOCK**

***ELECTRICAL INSTALLATION WORKS
SPECIFICATIONS AND BILLS OF QUANTITIES***

CLOSING DATE: 11TH DECEMBER, 2017

Contents Page

SECTION I	- 3 -
SECTION II	- 9 -
INSTRUCTIONS TO TENDERERS	- 9 -
APPENDIX TO INSTRUCTIONS TO TENDERERS	- 22 -
Where the deviation in the view of the tender committee with the concurrence of the procuring entity representative is major, the tender shall be deemed non-responsive and will not be evaluated further	- 31 -
SECTION IV	- 33 -
CONDITIONS OF MAIN CONTRACT	- 33 -
GENERAL CONDITIONS OF CONTRACT	- 33 -
SPECIAL CONDITIONS OF CONTRACT	- 52 -
APPENDIX TO CONDITIONS OF CONTRACT	- 53 -
(SUBCONTRACT WORKS)	- 53 -
SECTION VI	- 55 -
STANDARD FORMS	- 55 -
NOTES ON THE SAMPLE FORMS	- 55 -
FORM OF INVITATION FOR TENDERS	- 57 -
QUALIFICATION INFORMATION	- 58 -
TENDER QUESTIONNAIRE	- 61 -
CONFIDENTIAL BUSINESS QUESTIONNAIRE FORM	- 62 -
DECLARATION OF UNDERTAKING (INTEGRITY STATEMENT)	- 64 -
SITE VISIT DECLARATION FORM	- 67 -
TENDER SECURITY FORM	- 68 -
DETAILS OF SUB-CONTRACTORS	- 69 -
BANK GUARANTEE FOR ADVANCE PAYMENT FORM	- 70 -
PERFORMANCE SECURITY FORM	- 71 -
METHOD STATEMENT	- 72 -
STATEMENT OF FOREIGN CURRENCY REQUIREMENTS	- 73 -
LETTER OF NOTIFICATION OF AWARD	- 74 -
LETTER OF ACCEPTANCE	- 75 -
FORM OF AGREEMENT	- 76 -
CONTRACT FORM	- 78 -
PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD	- 79 -

SECTION I

INVITATION FOR TENDER (IFT)

Open International Tender (OIT)

**FUNDING: THE GOVERNMENT OF KENYA, THE GLOBAL FUND AND THE
KENYA MEDICAL SUPPLIES AUTHORITY**

IFT NO.: GF-KEMSA-CONST - 2/OIT6/ 2017-2018

PROPOSED CONSTRUCTION OF KEMSA MODERN WAREHOUSE AND OFFICE BLOCK AT EMBAKASI, NAIROBI

Date: 17th November, 2017

1. The Government of The Republic of Kenya (GoK) and The Global Fund (GF) through The Kenya Medical Supplies Authority (KEMSA) has set aside funds for construction of a Modern Warehouse and Office Block on LR No. 9042/176 at Embakasi, Nairobi Kenya.
2. KEMSA, on behalf of GOK and GF now invite sealed tender (s) for the underlisted categories of works.

Tender Reference	Tender Description	NCA Registratio n Category	Tender Security Amount
GF-KEMSA-CONST -1/OIT6/2017-2018	Main Works	NCA 1	Kshs.67,000,000.00
GF-KEMSA-CONST-2/OIT6/2017-2018	ELECTRICAL INSTALLATION WORKS	NCA 1	Kshs.6,800,000.00
GF-KEMSA-CONST-3/OIT6/2017-2018	STRUCTURED CABLING, PABX & SECURITY INSTALLATIONS	NCA 1	Kshs.4,400,000.00
GF-KEMSA-CONST-4/OIT6/2017-2018	LIFTS INSTALLATIONS	NCA 4 and above	Kshs.630,000.00
GF-KEMSA-CONST-5/OIT6/2017-2018	PLUMBING, DRAINAGE & FIRE FIGHTING,	NCA 2 and above	Kshs.3,400,000.00
GF-KEMSA-CONST-6/OIT6/2017-2018	MECHANICAL VENTILATION, SMOKE VENTS AND AIR CONDITIONING	NCA 4 and above	Kshs.1,100,000.00
GF-KEMSA-CONST-7/OIT6/2017-2018	COLD ROOMS AND FREEZER INSTALLATIONS	NCA 3 and above	Kshs.2,200,000.00

3. Bidding will be conducted through the **Open International Tender (OIT)** procedures specified in the Government of Kenya Public Procurement and Asset Disposals Act, 2015.

- Interested eligible bidders may obtain further information from KEMSA offices and inspect the bidding documents at the Procurement office situated at:

Kenya Medical Supplies Authority
13, Commercial Street, Industrial Area
P.O B Box 47715-00100
Telephone No.: +254 20 3922000/+254 719033000/+254 733606600
Fax No.: +254203922400
Email: procure@kemsa.co.ke

On normal working days on Monday to Friday **09.00hrs and 16.00hrs except on Public Holidays or download at the IFMIS Supplier's Portal: <http://supplier.treasury.go.ke/>** KEMSA's website <https://www.kemsa.co.ke> Documents downloaded are free of charge and bidders are advised to register at the Procurement Office or via email at procure@kemsa.co.ke (*Refer to registration form in the tender document*).

- A complete set of bidding documents (Hard Copy) in English may be purchased by interested bidders on the submission of a **written application** on company letterhead to the address below and upon payment of a non-refundable/non-transferable **fee of USD.13 or Kenya Shillings; 1,000/=**. The method of payment is i) by Cash or by Bankers cheque payable to "Kenya Medical Supplies Authority" KEMSA and ii) By direct deposit to the following accounts;

Kenya shillings Account

Account Name: Kenya Medical Supplies Authority
Bank Name & Branch: Co-operative Bank, Enterprise Road Branch
Account Number: 01141217405100

United States Dollar Account

Account Name: Kenya Medical Supplies Authority
Bank Name & Branch: Co-operative Bank, Enterprise Road Branch
Account Number: 02120217405100
Swift Code: KCOOKENA

- Complete serialized/paginated Bid Documents; **One original and a copy** in plain sealed envelopes clearly marked on top with the Tender Reference and Description and accompanied by a Bid Security of an amount as indicated in the respective Tender Documents in a freely convertible currency from Commercial Banks or Insurance Companies (Approved by The GOK Public Procurement Regulatory Authority) and should be addressed to:

The Chief Executive Officer
Kenya Medical Supplies Authority
13, Commercial Street, Industrial Area
P.O B Box 47715-00100
Nairobi, Kenya.

And must be deposited in Tender Box 2 Marked **Global Fund Tenders** at the reception on the Ground floor of KEMSA's Commercial Street Office in Nairobi on or before **11th December, 2017 at 10.00 a.m.** Bids will be opened immediately thereafter in the presence of Bidders' and or representatives who choose to attend.

- Bulky tenders can be handed over to KEMSA **Procurement Director's** office for registration and safe keeping till the tender opening date.

8. Late bids shall **NOT** be accepted.
9. There will be a mandatory Site visit for all prospective bidders on **29th November, 2017 from 9.00am** at KEMSA warehouse in Embakasi, Nairobi. Thereafter there will be a pre-bid meeting for those who wish to attend.

Yours sincerely,

CHIEF EXECUTIVE OFFICER,
KENYA MEDICAL SUPPLIES AUTHORITY

REGISTRATION FORM FOR ONLINE TENDERERS/BIDDERS/SUPPLIERS

Tender No.: GF-KEMSA-CONST-2 /OIT 6/2017-2018 – Proposed Construction of KEMSA Modern Warehouse and Office block

NOTE: Please provide your details below for purposes of communication in case you download this tender document from IFMIS or KEMSA website.

Name of the firm:.....

Postal Address:.....

Telephone Contacts:.....

Company email address:.....

Contact Person:.....

Once completed please submit this form to the email below;

procure@kemsaco.ke

SPECIAL NOTES

1. The Contractor is required to check the numbers of the pages of these Bills of Quantities against the contents stated on the Table of Contents and should he find missing, in duplicate or indistinct, he must inform the Procuring entity as described in this document at once and have the same rectified.
2. Should the Contractor be in doubt about the precise meaning of any item or figure for any reason whatsoever, he must inform the Procuring entity in order that the correct meaning may be decided before the date of submission of tenders.
3. No liability will be accepted nor any claim allowed in respect of errors in the Contractor's tender due to mistakes in these Bills of Quantities which should have been rectified in the manner described above.
4. The Tenderer shall not alter or otherwise qualify the text of this Tender Document. Any alteration or qualification made without any authority will be ignored and the text printed will be adhered to.
5. In case of Discrepancy between Tender Data Sheet and other sections of these Tender Documents, information in the Tender Data Sheet shall apply.
6. The bids shall be evaluated in accordance with evaluation criteria as detailed in the bid document.
7. Only Tenderers who score 70 points and above in the Technical Evaluation Stage shall qualify for further evaluation.
8. Special preference shall be given to the construction of the warehouse, flammable goods store, External Works and Civil works. Construction of the Office Block will commence not later than ten (10) months after the start of construction of the

PRE-BID SITE VISIT CERTIFICATE

KENYA MEDICAL SUPPLIES AUTHORITY

TENDER REFERENCE NO. GF-KEMSA-CONST-2 /OIT 6/2017-2018 ELECTRICAL INSTALLATION WORKS

=

We confirm that M/s.

..... was

duly represented by

during the **Site Visit/ Pre-bid Briefing** on **29th November, 2017** from **9.00A.M to 2.00 P.M** at KEMSA Warehouse Embakasi Nairobi.

Signed:

**CHIEF EXECUTIVE OFFICER
KENYA MEDICAL SUPPLIES**

AUTHORITY

SECTION II INSTRUCTIONS TO TENDERERS

General/Eligibility/Qualifications/Joint venture/Cost of tendering

- 1.1 This Invitation for Tenders is open to all eligible tenderers for Works Contract as described in the tender documents. The successful tenderer will be expected to complete the Works by the Intended Completion Date specified in the tender documents.
- 1.2 All tenderers shall provide the Qualification Information, a statement that the tenderer (including all members of a joint venture and subcontractors) is not associated, or has not been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the project or being proposed as Project Manager for the Contract. A firm that has been engaged by Kenya Medical Supplies Authority Ltd. to provide consulting services for the preparation or supervision of the Works, and any of its affiliates, shall not be eligible to tender.
- 1.3 All tenderers shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 1.4 In the event that pre-qualification of potential tenderers has been undertaken, only tenders from pre-qualified tenderers will be considered for award of Contract. These qualified tenderers should submit with their tenders any information updating their original pre-qualification applications or, alternatively, confirm in their tenders that the originally submitted pre-qualification information remains essentially correct as of the date of tender submission.

Tender documents shall be accompanied by the following **Mandatory requirements** for preliminary evaluation:-

Mandatory Requirements

- a) Certificate of Registration/Incorporation (*Applicable to all Bidders*)
- b) Valid & Current Registration with **National Construction Authority (NCA 1)** - (*Applicable to all Bidders*)
- c) Valid & Current Registration with **Energy Regulatory Commission (ERC Class A-1)** - (*Applicable to Electrical & Lift Bidders*)
- d) Valid & Current County Government Plumbers Licenses - (*Applicable to Plumbing & Fire Fighting Bidders*)
- e) Valid & Current Registration with The **Communication Authority** - (*Applicable to ICT & Security Bidders*)
- f) Manuals and Materials Certificates as described in the Tables attached and Bills of Quantities - (*Applicable to all Bidders*)

- g) Valid Tax Compliance Certificate - *(Applicable to all Bidders)*
- h) Valid Tender Security of 150 days - *(Applicable to all Bidders)*
- i) Duly Signed Anti-Corruption declaration form - *(Applicable to all Bidders)*
- j) Duly signed non-Debarment declaration form. - *(Applicable to all Bidders)*
- k) Pagination / Serialization of Tender Document- *(Applicable to all Bidders)*
- l) Duly signed form of Tender - *(Applicable to all Bidders)*
- m) Certificate of Site visit duly Signed and stamped by the procuring entity - *(Applicable to all Bidders)*

A tenderer who fails to meet the mandatory requirements shall be disqualified from further evaluation.

1.5 Where no pre-qualification of potential tenderers has been done, all tenderers shall include be required the following information and documents with their tenders, unless otherwise stated:

- (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the tender to commit the tenderer
- (b) total monetary value of construction work performed for each of the last five years:
- (c) experience in works of a similar nature and size for each of the last five years, and details of work under way or contractually committed; and names and addresses of clients who may be contacted for further information on these contracts;
- (d) Major items of construction equipment proposed to carry out the Contract and an undertaking that they will be available for the Contract.
- (e) Qualifications and experience of key site management and technical personnel proposed for the Contract and an undertaking that they shall be available for the Contract.
- (f) reports on the financial standing of the tenderer, such as profit and loss statements and auditor's reports for the past three years;
- (g) evidence of adequacy of working capital for this Contract (access to line(s) of credit and availability of other financial resources);
- (h) authority to seek references from the tenderer's bankers;
- (i) information regarding any litigation, current or during the last five years, in which the tenderer is involved, the parties concerned and disputed amount; and

- (j) Proposals for subcontracting components of the Works amounting to more than 10 percent of the Contract Price.
- 1.6 Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements, unless otherwise stated:
- (a) the tender shall include all the information listed in clause 1.5 above for each joint venture partner;
 - (b) the tender shall be signed so as to be legally binding on all partners;
 - (c) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
 - (d) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of all partners of the joint venture; and
 - (e) The execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.
- 1.7 To qualify for award of the Contract, tenderers shall meet the following minimum qualifying criteria;
- (a) annual volume of construction work of at least 2.5 times the estimated annual cashflow for the Contract;
 - (b) experience as main contractor in the construction of at least five works of a nature and complexity equivalent to the Works over the last 10 years (to comply with this requirement, works cited should be at least 70 percent complete);
 - (c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed as required for the Works;
 - (d) a Contract Manager with at least ten years' experience in works of an equivalent nature and volume, including no less than three years as Manager; and
 - (e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than 2 months of the estimated payment flow under this Contract.

- 1.8 The figures for each of the partners of a joint venture shall be added together to determine the tenderer's compliance with the minimum qualifying criteria of clause 1.7 (a) and (e); however, for a joint venture to qualify, each of its partners must meet at least 25 percent of minimum criteria 1.7 (a), (b) and (e) for an individual tenderer, and the partner in charge at least 40 percent of those minimum criteria. Failure to comply with this requirement will result in rejection of the joint venture's tender. Subcontractors' experience and resources will not be taken into account in determining the tenderer's compliance with the qualifying criteria, unless otherwise stated.
- 1.9 Each tenderer shall submit only one tender, either individually or as a partner in a joint venture. A tenderer who submits or participates in more than one tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the tenderer's participation to be disqualified.
- 1.10 The tenderer shall bear all costs associated with the preparation and submission of his tender, and Kenya Medical Supplies Authority will in no case be responsible or liable for those costs.
- 1.11 The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings, and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the tenderer's own expense.
- 1.12 The Kenya Medical Supplies Authority employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.
- 1.13 The price to be charged for the tender document shall be Kshs.1,000/.
- 1.14 The Kenya Medical Supplies Authority shall allow the tenderer to review the tender document free of charge before purchase.

2

Tender Documents

- 2.1 The complete set of tender documents comprises the documents listed below and any addenda issued in accordance with Clause 2.4.
 - (a) These Instructions to Tenderers
 - (b) Form of Tender and Qualification Information
 - (c) Conditions of Contract
 - (d) Appendix to Conditions of Contract
 - (e) Specifications
 - (f) Drawings
 - (g) Bills of Quantities
 - (h) Forms of Securities
- 2.2 The tenderer shall examine all Instructions, Forms to be filled and Specifications in the tender documents. Failure to furnish all information required by the tender documents, or submission of a tender not substantially responsive to the tendering documents in every respect will be at the tenderer's risk and may result in rejection of his tender.

- 2.3 A prospective tenderer making an inquiry relating to the tender documents may notify the Kenya Medical Supplies Authority in writing or by cable, telex or facsimile at the address indicated in the letter of invitation to tender. Kenya Medical Supplies Authority will only respond to requests for clarification received earlier than seven days prior to the deadline for submission of tenders. Copies of the Kenya Medical Supplies Authority's response will be forwarded to all persons issued with tendering documents, including a description of the inquiry, but without identifying its source.
- 2.4 Before the deadline for submission of tenders, Kenya Medical Supplies Authority may modify the tendering documents by issuing addenda. Any addendum thus issued shall be part of the tendering documents and shall be communicated in writing or by cable, telex or facsimile to all tenderers. Prospective tenderers shall acknowledge receipt of each addendum in writing to the Employer.
- 2.5 To give prospective tenderers reasonable time in which to consider an addendum in preparing their tenders, Kenya Medical Supplies Authority shall extend, as necessary, the deadline for submission of tenders, in accordance with Clause 4.2 here below.

3 Preparation of Tenders

- 3.1 All documents relating to the tender and any correspondence shall be in English language.
- 3.2 The tender submitted by the tenderer shall comprise the following:
 - (a) These Instructions to Tenderers, Form of Tender, Conditions of Contract, Appendix to Conditions of Contract and Specifications;
 - (b) Tender Security;
 - (c) Priced Bill of Quantities ;
 - (d) Qualification Information Form and Documents;
 - (e) Alternative offers where invited; and
 - (f) Any other materials required to be completed and submitted by the tenderers.
- 3.3 The tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items for which no rate or price is entered by the tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause relevant to the Contract, as of 30 days prior to the deadline for submission of tenders, shall be included in the tender price submitted by the tenderer.

- 3.4 The rates and prices quoted by the tenderer shall only be subject to adjustment during the performance of the Contract if provided for in the Appendix to Conditions of Contract and provisions made in the Conditions of Contract.
- 3.5 The unit rates and prices shall be in Kenya Shillings.
- 3.6 Tenders shall remain valid for a period of one hundred and Twenty (120) days from the date of submission. However in exceptional circumstances, the Kenya Medical Supplies Authority may request that the tenderers extend the period of validity for a specified additional period. The request and the tenderers' responses shall be made in writing. A tenderer may refuse the request without forfeiting the Tender Security. A tenderer agreeing to the request will not be required or permitted to otherwise modify the tender, but will be required to extend the validity of Tender Security for the period of the extension, and in compliance with Clause 3.7 - 3.11 in all respects.
- 3.7 The tenderer shall furnish, as part of the tender, a Tender Security in the amount and form specified in the appendix to invitation to tenderers. This shall be in the amount not exceeding 2 percent of the tender price.
- 3.8 The format of the Tender Security should be in accordance with the form of Tender Security included in Section IV - Standard forms or any other form acceptable to Kenya Medical Supplies Authority. Tender Security shall be valid for 30 days beyond the validity of the tender.
- 3.9 Any tender not accompanied by an acceptable Tender Security shall be rejected. The Tender Security of a joint venture must define as "Tenderer" all joint venture partners and list them in the following manner: a joint venture consisting of ".....", ".....", and ".....".
- 3.10 The Tender Securities of unsuccessful tenderers will be returned within 28 days of the end of the tender validity period specified in Clause 3.6.
- 3.11 The Tender Security of the successful tenderer will be discharged when the tenderer has signed the Contract Agreement and furnished the required Performance Security.
- 3.12 The Tender Security may be forfeited
 - (a) if the tenderer withdraws the tender after tender opening during the period of tender validity;
 - (b) if the tenderer does not accept the correction of the tender price, pursuant to Clause 5.7;
 - (c) in the case of a successful tenderer, if the tenderer fails within the specified time limit to
 - (i) sign the Agreement, or
 - (ii) furnish the required Performance Security.
- 3.13 Tenderers shall submit offers that comply with the requirements of the tendering documents, including the basic technical design as indicated in the Drawings and Specifications. Alternatives will not be considered, unless specifically allowed in the invitation to tender. If so allowed, tenderers wishing to offer technical alternatives to the requirements of the tendering

documents must also submit a tender that complies with the requirements of the tendering documents, including the basic technical design as indicated in the Drawings and Specifications. In addition to submitting the basic tender, the tenderer shall provide all information necessary for a complete evaluation of the alternative, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details. Only the technical alternatives, if any, of the lowest evaluated tender conforming to the basic technical requirements shall be considered.

- 3.14 The tenderer shall prepare one original of the documents comprising the tender documents as described in Clause 3.2 of these Instructions to Tenderers, bound with the volume containing the Form of Tender, and clearly marked “**ORIGINAL**”. In addition, the tenderer shall submit copies of the tender, in the number specified in the invitation to tender, and clearly marked as “**COPIES**”. In the event of discrepancy between them, the original shall prevail.
- 3.15 The original and all copies of the tender shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer, pursuant to Clause 1.5 (a) or 1.6 (b), as the case may be. All pages of the tender where alterations or additions have been made shall be initialed by the person or persons signing the tender.
- 3.16 Clarification of tenders shall be requested by the tenderer to be received by the procuring entity not later than 7 days prior to the deadline for submission of tenders.
- 3.17 The procuring entity shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender.
- 3.18 The tender security shall be in the amount of 0.5 – 2 per cent of the tender price.

4

Submission of Tenders

- 4.1 The tenderer shall seal the original and all copy of the tender in two inner envelopes and one outer envelope, duly marking the inner envelopes as “**ORIGINAL**” and “**COPY**” as appropriate. The inner and outer envelopes shall:
 - (a) be addressed to the Kenya Medical Supplies Authority at the address provided in the invitation to tender;
 - (b) bear the name and identification number of the Contract as defined in the invitation to tender; and
 - (c) provide a warning not to open before the specified time and date for tender opening.
- 4.2 Tenders shall be delivered to Kenya Medical Supplies Authority at the address specified above not later than the time and date specified in the invitation to tender. However, Kenya Medical Supplies Authority may extend the deadline for submission of tenders by issuing an amendment in accordance with Sub-Clause 2.5 in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline will then be subject to the new deadline.
- 4.3 Any tender received after the deadline prescribed in clause 4.2 will be

returned to the tenderer un-opened.

- 4.4 Tenderers may modify or withdraw their tenders by giving notice in writing before the deadline prescribed in clause 4.2. Each tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with clause 3.13 and 4.1, with the outer and inner envelopes additionally marked "**MODIFICATION**" and "**WITHDRAWAL**", as appropriate. No tender may be modified after the deadline for submission of tenders.
- 4.5 Withdrawal of a tender between the deadline for submission of tenders and the expiration of the period of tender validity specified in the invitation to tender or as extended pursuant to Clause 3.6 may result in the forfeiture of the Tender Security pursuant to Clause 3.11.
- 4.6 Tenderers may only offer discounts to, or otherwise modify the prices of their tenders by submitting tender modifications in accordance with Clause 4.4 or be included in the original tender submission.

5 Tender Opening and Evaluation

- 5.1 The tenders will be opened by Kenya Medical Supplies Authority, including modifications made pursuant to Clause 4.4, in the presence of the tenderers' representatives who choose to attend at the time and in the place specified in the invitation to tender. Envelopes marked "**WITHDRAWAL**" shall be opened and read out first. Tenderers' and Employer's representatives who are present during the opening shall sign a register evidencing their attendance.
- 5.2 The tenderers' names, the tender prices, the total amount of each tender and of any alternative tender (if alternatives have been requested or permitted), any discounts, tender modifications and withdrawals, the presence or absence of Tender Security, and such other details as may be considered appropriate, will be announced by the Employer at the opening. Minutes of the tender opening, including the information disclosed to those present will be prepared by Kenya Medical Supplies Authority.
- 5.3 Information relating to the examination, clarification, evaluation, and comparison of tenders and recommendations for the award of Contract shall not be disclosed to tenderers or any other persons not officially concerned with such process until the award to the successful tenderer has been announced. Any effort by a tenderer to influence the Kenya Medical Supplies Authority's officials, processing of tenders or award decisions may result in the rejection of his tender.
- 5.4 To assist in the examination, evaluation, and comparison of tenders, the Kenya Medical Supplies Authority at his discretion, may ask any tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the price or substance of the tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered in the evaluation of the tenders in accordance with Clause 5.7.
- 5.5 Prior to the detailed evaluation of tenders, the Kenya Medical Supplies Authority will determine whether each tender (a) meets the eligibility criteria defined in Clause 1.7;(b) has been properly signed; (c) is accompanied by the

required securities; and (d) is substantially responsive to the requirements of the tendering documents. A substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tendering documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the works; (b) which limits in any substantial way, inconsistent with the tendering documents, the Kenya Medical Supplies Authority's rights or the tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other tenderers presenting substantially responsive tenders.

- 5.6 If a tender is not substantially responsive, it will be rejected, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.
- 5.7 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:
- (a) where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and
 - (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.
 - (c) In the event of a discrepancy between the tender amount as stated in the Form of Tender and the corrected tender figure in the main summary of the Bill of Quantities, the amount as stated in the Form of Tender shall prevail.
 - (d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the corrected Builder's Work (i.e. Corrected tender sum less P.C. and Provisional Sums)
 - (e) The Error Correction Factor shall be applied to all Builder's Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.
 - (f) the amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and, with concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security may be forfeited in accordance with clause 3.11.
- 5.8 Kenya Medical Supplies Authority will evaluate and compare only the tenders determined to be substantially responsive in accordance with Clause 5.5.
- 5.9 In evaluating the tenders, Kenya Medical Supplies Authority will determine for each tender the evaluated tender price by adjusting the tender price as follows:

- (a) making any correction for errors pursuant to clause 5.7;
 - (b) excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities, but including Dayworks where priced competitively.

 - (c) making an appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with clause 3.12; and
 - (d) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with clause 4.6
- 5.10 Kenya Medical Supplies Authority reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in tender evaluation.
- 5.11 The tenderer shall not influence the Kenya Medical Supplies Authority on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.
- 5.12 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding Provisional Sums to non-indigenous sub-contractor.

6

Award of Contract

- 6.1 Subject to Clause 6.2, the award of the Contract will be made to the tenderer whose tender has been determined to be substantially responsive to the tendering documents and who has offered the lowest evaluated tender price, provided that such tenderer has been determined to be (a) eligible in accordance with the provision of Clauses 1.2, and (b) qualified in accordance with the provisions of clause 1.7 and 1.8.
- 6.2 Notwithstanding clause 6.1 above, Kenya Medical Supplies Authority reserves the right to accept or reject any tender, and to cancel the tendering process and reject all tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the action.
- 6.3 The tenderer whose tender has been accepted will be notified of the award prior to expiration of the tender validity period in writing or by cable, telex or facsimile. This notification (hereinafter and in all Contract documents called

the “Letter of Acceptance”) will state the sum (hereinafter and in all Contract documents called the “Contract Price”) that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract. At the same time the other tenderers shall be informed that their tenders have not been successful.

The contract shall be formed on the parties signing the contract.

- 6.4 The Agreement will incorporate all agreements between Kenya Medical Supplies Authority and the successful tenderer. Within 14 days of receipt the successful tenderer will sign the Agreement and return it to the Employer.
- 6.5 Within **21 days after receipt** of the Letter of Acceptance, the successful tenderer shall deliver to the Kenya Medical Supplies Authority a Performance Security in the amount stipulated in the Appendix to Conditions of Contract and in the form stipulated in the Tender documents. The Performance Security shall be in the amount and specified form.
- 6.6 Failure of the successful tenderer to comply with the requirements of clause 6.5 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Tender Security.
- 6.7 Upon the furnishing by the successful tenderer of the Performance Security, Kenya Medical Supplies Authority Ltd. will promptly notify the other tenderers that their tenders have been unsuccessful.
- 6.8 Preference where allowed in the evaluation of tenders shall not be allowed for contracts not exceeding one year (12 months).
- 6.9 The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening the tender.
- 6.10 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.
- 6.11 Contract price variations shall not be allowed for contracts not exceeding one year (12 months).
- 6.12 Where contract price variation is allowed, the variation shall not exceed 20% of the original contract price.
- 6.13 Price variation request shall be processed by the procuring entity within 30 days of receiving the request.
- 6.14 Kenya Medical Supplies Authority may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 6.15 Kenya Medical Supplies Authority shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.

- 6.17 A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.

7

Corrupt and Fraudulent practices

- 7.1 Kenya Medical Supplies Authority requires that tenderers observe the highest standards of ethics during procurement process and execution of contracts. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.

APPENDIX TO INSTRUCTIONS TO TENDERERS

APPENDIX TO INSTRUCTIONS TO TENDERERS

The following information for procurement of services shall complement or amend the provisions of the instructions to tenderers. Wherever there is a conflict between the provisions of the instructions to tenderers and the provisions of the Appendix, the provisions of the Appendix herein shall prevail over those of the instructions to tenderers.

SECTION III

TENDER EVALUATION CRITERIA

(a) Tender Evaluation Criteria

The following criteria will be used in the evaluation of all bids. The submission of the required documents will be used in the determination of the Completeness and Suitability of the Bid. Bids that do not contain all the information required will be declared non responsive and shall not be evaluated further.

1.1 Stage I – Mandatory Requirements

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

- a) Certificate of Registration/Incorporation *(Applicable to all Bidders)*
- b) Valid Registration with **National Construction Authority (NCA 1)** - *(Applicable to all Bidders)*
- c) Valid & Current Registration with **Energy Regulatory Commission (ERC Class A-1)** - *(Applicable to Electrical & Lift Bidders)*
- d) Valid & Current County Government Plumbers Licenses - *(Applicable to Plumbing & Fire Fighting Bidders)*
- e) Valid & Current Registration with The **Communication Authority (CA)** - *(Applicable to ICT & Security Bidders)*
- f) Manuals and Materials Certificates as described in the Tables attached and Bills of Quantities - *(Applicable to all Bidders)*
- g) Valid Tax Compliance Certificate - *(Applicable to all Bidders)*
- h) Valid Tender Security of 150 days - *(Applicable to all Bidders)*
- i) Duly Signed Anti-Corruption declaration form - *(Applicable to all Bidders)*
- j) Duly signed non-Debarment declaration form - *(Applicable to all Bidders)*
- k) Pagination / Serialization of Tender Document - *(Applicable to all Bidders)*
- l) Duly signed form of Tender - *(Applicable to all Bidders)*
- m) Certificate of Site visit duly Signed and stamped by the procuring entity - *(Applicable to all Bidders)*

A tenderer who fails to meet the mandatory requirements shall be disqualified from further evaluation.

STAGE 2: TECHNICAL EVALUATION

The tender document shall be examined based on clause 2.2 of the Instruction to Tenderers which states as follows:

In accordance with clause 2.2 of Instruction to Tenderers, the tenderers will be required to provide evidence for eligibility of the award of the tender by satisfying the employer of their eligibility under sub clause 2.1 of Instructions to Tenderers and their capability and adequacy of resources to effectively carry out the subject contract.

In order to comply with provisions of clause 2.2 of Instruction to tenderers, the tenderers shall be required;

- a) *To fill the Standard Forms* provided in the bid document for the purposes of providing the required information. The tenderers may also attach the required information if they so desire;
- b) *To supply equipment's/items which comply with the technical specifications set out in the bid document.* In this regard, the bidders shall be required to submit relevant technical brochures/catalogues with the tender document, highlighting the Catalogue Numbers of the proposed items. Such brochures/catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include but not limited to the following:
 - (i) Standards of manufacture;
 - (ii) Performance ratings/characteristics;
 - (iii) Material of manufacture;
 - (iv) Electrical power ratings; and
 - (v) Any other necessary requirements (Specify).

The bid will then be analyzed, using the information in the technical brochures, to determine compliance with General and Particular technical specifications for the works as indicated in the tender document. The tenderer shall also fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer and catalogue numbers of the Items/Equipment's they propose to supply.

1.2 Stage II -Technical Evaluation

The award of points considered in this section shall be as shown below:

<u>PARAMETER</u>	<u>MAXIMUM POINTS</u>
(i) Presentation of Bid document -----	2
(ii) Compliance with Technical Specifications-----	40
(iii) Key personnel -----	20
(iv) Contract Completed in the last Ten (10) years -----	20
(v) Schedules of on-going projects -----	3
(vi) Schedules of contractors equipment -----	38
(vii) Audited Financial Report for the last 3 years -----	15
(viii) Evidence of Financial Resources -----	15
(ix) Name, Address and Telephone of Banks (Contractor to provide)-----	2
(x) Compliance to warehouse completion time-----	4
(xi) Litigation History -----	1
TOTAL	140

A bidder scoring less than 70% shall not be considered Technically responsive and therefore shall not be considered for financial evaluation.

The detailed scoring plan shall be as shown in table 1.

The detailed scoring plan shall be as shown in table 1 below: -

stage II : Technical Evaluation

Item	Description	Raw Points Scored	Max. Point
1	<p>Compliance with Technical Specifications</p> <ul style="list-style-type: none"> • Full Compliant -----40 • Non-compliant----- 0 <p><i>(Note: Tender Evaluation Committee to carry out analysis showing how decision on this requirement has been arrived at. Attach analysis on this as an Appendix)</i></p>	40	40
2	Presentation and response (This includes binding the documents, neat presentation, separation and arrangement of requested information and general response to all requirements)		2
3	<p>Key Personnel (Attach evidence)</p> <p>Director of the firm</p> <ul style="list-style-type: none"> • Holder of degree in relevant field -----4 • Holder of diploma in relevant field -----3 • Holder of certificate in relevant Engineering field---- 2 • Holder of trade test certificate in relevant Engineering field (At least three personnel)----- --1 <p>2No. degree/diploma holders of key personnel in relevant field</p> <ul style="list-style-type: none"> • With over 10 years relevant experience ----- 8 • With over 5 years relevant experience----- 4 • With under 5 years relevant experience ----- 2 <p>4 No certificate holder of key personnel in relevant field</p> <ul style="list-style-type: none"> • With over 10 years relevant experience----- 4 • With over 5 years relevant experience ----- 3 • With under 5 years relevant experience -----1 <p>8 No artisan (trade test certificate in relevant field)</p> <ul style="list-style-type: none"> • Artisan with over 10 years relevant experience -- 4 • Artisan with under 10 years relevant experience --2 		20
iii	<p>Contract completed in the last Ten (10) years <u>Provide Evidence</u> Warehouses - 2 projects of similar nature/ complexity and magnitude Warehouses- Maximum - 12 marks (a) Above Kshs.300. Million (6 marks for each project) (b) Kshs 200 Million - 299Million(4 marks for each project) (c) Kshs 100 Million – 199Million – (2 mark for each project)</p> <p>Office Block/ office facilities – 8 marks (d) Above Kshs.300 Million (4 marks for each project) (e) Kshs 200 Million - 299million – (2 mark for each project) (f) Below Kshs 200 Million (1 mark for each project)</p>		20

iv	On-going projects and their values <u>Provide Evidence</u>			3
v	Schedule of contractors equipment and transport (proof or evidence of ownership/Lease) a) Relevant Transport <ul style="list-style-type: none"> • Trucks 2No. (4Mks) • Pickups 2No. (2mks) b) Equipment's/tools <ul style="list-style-type: none"> • Cable Drum roller 2No. set (2mks) • Grounding tester 2No. (2Mks) • Thermal imaging unit 2No. (4 Mks) • Lugging and glanding tools 2No. (2Mks) • Insulation tester 1No. (2Mks) • Phase rotation meter 4No. (4mks) • 120kva Load Bank 1No. 2Mks) • PPE Equipment's (2mks) • Drilling tools 2No. Sets (2mks) • Cutting tools 2No. Sets (2mks) Vertical transport <ul style="list-style-type: none"> • Mobile Hoisting Crane 30T & above (6Mks) • Hoist 0.5T 2No. (2mks) 			38
vi	Financial report			15
	a) Audited financial report (last three (3) years) <ul style="list-style-type: none"> • Provide Audited Accounts for 2016, 2015, 2014 (3 Mks) • Average Annual Turn-over equal to or greater than the annual Expected Turnover of the project ----- (12mks) • Average Annual Turn-over above 50% but below 100% of the cost of the project ----- (2Mks) • Average Annual Turn-over below 50% of the cost of the project ----- 1Mks 			
	b) Evidence of Financial Resources (cash in hand, lines of credit, over draft facility, etc) <ul style="list-style-type: none"> • Has financial resources to finance the projected monthly cash flow* for three months -----15 • Has financial resources equal to the projected monthly cash flow*-----10 • Has financial resources less the projected monthly cash flow*-----5 			15

	<ul style="list-style-type: none"> Has not indicated sources of financial resources ----- 0 		
	Name, Address and Telephone of Banks		2
vii	Litigation History <ul style="list-style-type: none"> Duly Filled ----- 1 Not filled ----- 0 		1
xi	Prepared for Compliance to warehouse Main contractor (to be appointed) completion time	4 Mks	4
	TOTAL		140

**Monthly Cash Flow = Tender Sum/Contract Period*

A bidder must score at least 75% total marks to qualify for further evaluation. (Score 105/140). The Technical Score will be weighted to 70.

A) Compliance with technical specifications

In this section, the bid will be analyzed to determine compliance with General and Particular technical specifications for the works as indicated in the tender document. The tenderer shall fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer of the Item/Equipment they propose to supply.

The tenderer shall also submit relevant technical brochures/catalogues with the tender document, highlighting the catalogue Numbers of the proposed items. Such brochures/catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include but not limited to the following:

- a) Standards of manufacture;
- b) Performance ratings/characteristics;
- c) Material of manufacture;
- d) Electrical power ratings; and
- e) Any other necessary requirements (Specify).

Following the above analyses, where the proposed equipment is found not to conform to the stipulated specifications, the tender will be deemed Non-Responsive and will not be evaluated further.

B) Assessment of deviations

Pursuant to section 64 of the act, a tender is deemed responsive if it conforms to all the mandatory requirements and it **does not contain major** deviations. Section 23.2 of the instruction to tenderers, defines major deviations as

- a) One that affects in a substantial way the scope, quality, completion timing, administration of works to be undertaken by the tenderer under the contract, inconsistent with the tender document; or
- b) Which limits in any substantial way the rights of the employer or the tenderers obligations; or
- c) Whose rectification would affect unfairly the competitive position of other tenderers presenting substantially responsive tenders.

Where the deviations are minor in the view of the tender committee, with the concurrence of the procuring entity representative, the evaluation committee shall quantify such deviations pursuant to section 64 (3) of the act which requires that a minor deviation shall:

- a) Be quantified to the extent possible; and
- b) Be taken into account in the evaluation and comparison of tenders.

Where the deviation in the view of the tender committee with the concurrence of the procuring entity representative is major, the tender shall be deemed **non-responsive and will not be evaluated further**

STAGE 3 - FINANCIAL EVALUATION

Upon completion of the technical evaluation, a detailed financial evaluation shall follow.

The evaluation shall be in **three stages**

- a) Determination of Arithmetic errors
- b) Comparison of Rates; and
- c) Consistency of the Rates.

A) Determination of Arithmetic Errors

Arithmetic Errors will be corrected by the Procuring Entity as follows:

- i) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail. Pursuant to Section 82 of the Public Procurement and Asset Disposal Act 2015, 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;
- ii) Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums);
- iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

B) Comparison of rates

Items that are under priced or overpriced may indicate potential for non-delivery and front loading respectively. The committee shall promptly write to the tenderer asking for detailed breakdown of costs for any of the quoted items, relationship between those prices, proposed construction/installation methods and schedules.

The evaluation committee shall evaluate the responses and make an appropriate recommendation to the procuring entity giving necessary evidence. Such recommendations may include but not limited to:

- a) Recommend no adverse action to the tenderer after a convincing response;
- b) Employer requiring that the amount of the performance bond be raised at the expense of the successful tenderer to a level sufficient to protect the employer against potential financial losses;
- c) Recommend non-award based on the response provided and the available demonstrable evidence that the scope, quality, completion timing, administration of works to be undertaken by the tenderer, would adversely be affected or the rights of the employer or the tenderers obligations would be limited in a substantial way.

C) Consistency of the Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of the rates for similar items.

FINANCIAL EVALUATION

The Tenderers who qualify under Technical Evaluation will have their Financial Bid evaluated and the lowest responsive bid submitted after analysis shall have their tender considered for award.

5.7 (f) Not Applicable

SECTION IV

CONDITIONS OF MAIN CONTRACT

GENERAL CONDITIONS OF CONTRACT

1 Definitions

1.1 In this Contract, except where context otherwise requires, the following terms shall be interpreted as indicated;

“**Bill of Quantities**” means the priced and completed Bill of Quantities forming part of the tender.

“**Compensation Events**” are those defined in Clause 24 hereunder.

“**The Completion Date**” means the date of completion of the Works as certified by the Project Manager, in accordance with Clause 31.

“**The Contract**” means the agreement entered into between the Kenya Medical Supplies Authority 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,

“**The Contractor**” refers to the person or corporate body whose tender to carry out the Works has been accepted by Kenya Medical Supplies Authority

“**The Contractor’s Tender**” is the completed tendering document submitted by the Contractor to Kenya Medical Supplies Authority

“**The Contract Price**” is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

“**Days**” are calendar days; “**Months**” are calendar months.

“**A Defect**” is any part of the Works not completed in accordance with the Contract.

“**The Defects Liability Certificate**” is the certificate issued by Project Manager upon correction of defects by the Contractor.

“**The Defects Liability Period**” is the period named in the Contract Data and calculated from the Completion Date.

“**Drawings**” include calculations and other information provided or approved by the Project Manager for the execution of the Contract.

“**Dayworks**” are Work inputs subject to payment on a time basis for labour and the associated materials and plant.

“Employer”, or the **“Procuring entity”** as defined in the Public Procurement Regulations (i.e. National or County Government administration, Universities, Public Institutions and Corporations, etc) is the party who employs the Contractor to carry out the Works.

“Equipment” is the Contractor’s machinery and vehicles brought temporarily to the Site for the execution of the Works.

“The Intended Completion Date” is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.

“Materials” are all supplies, including consumables, used by the Contractor for incorporation in the Works.

“Plant” is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.

“Project Manager” is the person named in the Appendix to Conditions of Contract (or any other competent person appointed by the Kenya Medical Supplies Authority and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract 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.

“Site” is the area defined as such in the Appendix to Condition of Contract.

“Site Investigation Reports” are those reports that may be included in the tendering documents which are factual and interpretative about the surface and subsurface conditions at the Site.

“Specifications” means the Specifications of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

“Start 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).

“A Subcontractor” is a person or corporate body who has a Contract with the Contractor to carry out a part of the Work in the Contract, which includes Work on the Site.

“Temporary works” are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

“A Variation” is an instruction given by the Project Manager which varies the Works.

“The Works” are what the Contract requires the Contractor to construct, install, and turnover to Kenya Medical Supplies Authority, as defined in the Appendix to Conditions of Contract.

2 Interpretation

- 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning in English Language unless

specifically defined. The Project Manager will provide instructions clarifying queries about these Conditions of Contract.

- 2.2 If sectional completion is specified in the Appendix to Conditions of Contract, reference in the Conditions of Contract to the Works, the Completion Date and the Intended Completion Date apply to any section of the Works (other than references to the Intended Completion Date for the whole of the Works).
- 2.3 The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority;
 - a) Agreement,
 - b) Letter of Acceptance,
 - c) Contractor's Tender,
 - d) Appendix to Conditions of Contract,
 - e) Conditions of Contract,
 - f) Specifications,
 - g) Drawings,
 - h) Bill of Quantities,
 - i) Any other documents listed in the Appendix to Conditions of Contract as forming part of the Contract.

Immediately after the execution of the Contract, the Project Manager shall furnish both Kenya Medical Supplies Authority and the Contractor with two copies each of all the Contract documents. Further, as and when necessary the Project Manager shall furnish the Contractor [always with a copy to the Kenya Medical Supplies Authority] with three [3] copies of such further drawings or details or descriptive schedules as are reasonably necessary either to explain or amplify the Contract drawings or to enable the Contractor to carry out and complete the Works in accordance with these Conditions.

3 Language and Law

- 3.1 Language of the Contract and the law governing the Contract shall be English language and the Laws of Kenya respectively unless otherwise stated.

4 Project Manager's Decisions

- 4.1 Except where otherwise specifically stated, the Project Manager will decide contractual matters between Kenya Medical Supplies Authority and the Contractor in the role representing the Kenya Medical Supplies Authority.

5 Delegation

- 5.1 The Project Manager may delegate any of his duties and responsibilities to others after notifying the Contractor.

6 Communications

- 6.1 Communication between parties shall be effective only when in writing. A notice shall be effective only when it is delivered.

7 Subcontracting

- 7.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of Kenya Medical Supplies Authority in writing. Subcontracting shall not alter the Contractor's obligations.

8 Other Contractors

- 8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities etc. as listed in the Appendix to Conditions of Contract and also with the Kenya Medical Supplies Authority, as per the directions of the Project Manager. The Contractor shall also provide facilities and services for them. Kenya Medical Supplies Authority may modify the said List of Other Contractors etc., and shall notify the Contractor of any such modification.

9 Personnel

- 9.1 The Contractor shall employ the key personnel named in the Qualification Information, to carry out the functions stated in the said Information or other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Qualification Information. If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the Work in the Contract.

10 Works

- 10.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings. The Works may commence on the Start Date and shall be carried out in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.

11 Safety and Temporary Works

- 11.1 The Contractor shall be responsible for the design of temporary works. However before erecting the same, he shall submit his designs including specifications and drawings to the Project Manager and to any other relevant third parties for their approval. No erection of temporary works shall be done until such approvals are obtained.
- 11.2 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary works and all drawings prepared by the Contractor for the execution of the temporary or permanent Works, shall be subject to prior approval by the Project Manager before they can be used.
- 11.3 The Contractor shall be responsible for the safety of all activities on the Site.

12 Discoveries

- 12.1 Anything of historical or other interest or of significant value unexpectedly discovered on Site shall be the property of Kenya Medical Supplies Authority. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.

13 Work Program

- 13.1 Within the time stated in the Appendix to Conditions of Contract, the Contractor shall submit to the Project Manager for approval a program showing the general methods, arrangements, order, and timing for all the activities in the Works. An update of the program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Work, including any changes to the sequence of the activities.

The Contractor shall submit to the Project Manager for approval an updated program at intervals no longer than the period stated in the Appendix to Conditions of Contract. If the Contractor does not submit an updated program within this period, the Project Manager may withhold the amount stated in the said Appendix from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue program has been submitted. The Project Manager's approval of the program shall not alter the Contractor's obligations. The Contractor may revise the program and submit it to the Project Manager again at any time. A revised program shall show the effect of Variations and Compensation Events.

14 Possession of Site

- 14.1 Kenya Medical Supplies Authority shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Appendix to Conditions of Contract, Kenya Medical Supplies Authority will be deemed to have delayed the start of the relevant activities, and this will be a Compensation Event.

15 Access to Site

- 15.1 The Contractor shall allow the Project Manager and any other person authorised by the Project Manager, access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

16. Instructions

- 16.1 The Contractor shall carry out all instructions of the Project Manager which are in accordance with the Contract.
- 16.2 If within seven days after receipt of a written notice from the Project Manager requiring compliance with Project Manager's instructions the Contractor does not comply therewith, the Kenya Medical Supplies Authority may employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instructions and all costs incurred in connection therewith shall be recoverable from the Contractor by the Employer as a debt or may be deducted by the Project Manager from any moneys due or to become due to the Contractor.

under this Contract

17 Extension or Acceleration of Completion Date

- 17.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a variation is issued which makes it impossible for completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining Work, which would cause the Contractor to incur additional cost. The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager in writing for a decision upon the effect of a Compensation Event or variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay caused by such failure shall not be considered in assessing the new (extended) Completion Date.
- 17.2 No bonus for early completion of the Works shall be paid to the Contractor by the Employer.

18 Management Meetings

- 18.1 A Contract management meeting shall be held monthly and attended by the Project Manager and the Contractor. Its business shall be to review the plans for the remaining Work and to deal with matters raised in accordance with the early warning procedure. The Project Manager shall record the minutes of management meetings and provide copies of the same to those attending the meeting and the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

19 Early Warning

- 19.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the Work, increase the Contract Price or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.
- 19.2 The Contractor shall cooperate with the Project Manager in making and considering proposals on how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the Work and in carrying out any resulting instructions of the Project Manager.

20 Defects

- 20.1 The Project Manager shall inspect the Contractor's work and notify the Contractor of any defects that are found. Such inspection shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a defect and to uncover and test any Work that the Project Manager considers may have a defect. Should the defect be found, the cost of uncovering and making good shall be borne by the Contractor, However, if there is no defect found, the cost of uncovering and making good shall be treated as a variation and added to the Contract Price.
- 20.2 The Project Manager shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the Appendix to Conditions of Contract. The Defects Liability Period shall be extended for as long as defects remain to be corrected.
- 20.3 Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Project Manager's notice. If the Contractor has not corrected a defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

21 Bills of Quantities

- 21.1 The Bills of Quantities shall contain items for the construction, installation, testing and commissioning of the Work to be done by the Contractor. The Contractor will be paid for the quantity of the Work done at the rate in the Bills of Quantities for each item.
- 21.2 If the final quantity of the Work done differs from the quantity in the Bills of Quantities for the particular item by more than 25 percent and provided the change exceeds 1 percent of the Initial Contract price, the Project Manager shall adjust the rate to allow for the change.
- 21.3 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bills of Quantities.

22 Variations

- 22.1 All variations shall be included in updated programs produced by the Contractor.
- 22.2 The Contractor shall provide the Project Manager with a quotation for carrying out the variations when requested to do so. The Project Manager shall assess the quotation, which shall be given within seven days of the request or within any longer period as may be stated by the Project Manager and before the Variation is ordered.

- 22.3 If the work in the variation corresponds with an item description in the Bills of Quantities and if in the opinion of the Project Manager, the quantity of work is not above the limit stated in Clause 21.2 or the timing of its execution does not cause the cost per unit of quantity to change, the rate in the Bills of Quantities shall be used to calculate the value of the variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the variation does not correspond with items in the Bills of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of Work.
- 22.4 If the Contractor's quotation is unreasonable, the Project Manager may order the variation and make a change to the Contract price, which shall be based on the Project Manager's own forecast of the effects of the variation on the Contractor's costs.
- 22.5 If the Project Manager decides that the urgency of varying the Work would prevent a quotation being given and considered without delaying the Work, no quotation shall be given and the variation shall be treated as a Compensation Event.
- 22.6 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.
- 22.7 When the Program is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.

23 Payment Certificates, Currency of Payments and Advance Payments

- 23.1 The Contractor shall submit to the Project Manager monthly applications for payment giving sufficient details of the Work done and materials on Site and the amounts which the Contractor considers himself to be entitled to. The Project Manager shall check the monthly application and certify the amount to be paid to the Contractor within 14 days. The value of Work executed and payable shall be determined by the Project Manager.
- 23.2 The value of Work executed shall comprise the value of the quantities of the items in the Bills of Quantities completed, materials delivered on Site, variations and compensation events. Such materials shall become the property of Kenya Medical Supplies Authority once Kenya Medical Supplies Authority has paid the Contractor for their value. Thereafter, they shall not be removed from Site without the Project Manager's instructions except for use upon the Works.
- 23.3 Payments shall be adjusted for deductions for retention. Kenya Medical Supplies Authority shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of issue of each certificate. If Kenya Medical Supplies Authority makes a late payment, the Contractor shall be paid simple interest on the late payment in the next payment. Interest shall be calculated on the basis of number of days delayed at a rate three percentage points above the Central Bank of Kenya's average rate for base lending prevailing as of the first day the payment becomes overdue.
- 23.4 If an amount certified is increased in a later certificate or as a result of an award by an Arbitrator, the Contractor shall be paid interest upon the delayed payment

as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

- 23.5 Items of the Works for which no rate or price has been entered in will not be paid for by Kenya Medical Supplies Authority and shall be deemed covered by other rates and prices in the Contract.
- 23.6 The Contract Price shall be stated in Kenya Shillings. All payments to the Contractor shall be made in Kenya Shillings and foreign currency in the proportion indicated in the tender, or agreed prior to the execution of the Contract Agreement and indicated therein. The rate of exchange for the calculation of the amount of foreign currency payment shall be the rate of exchange indicated in the Appendix to Conditions of Contract. If the Contractor indicated foreign currencies for payment other than the currencies of the countries of origin of related goods and services Kenya Medical Supplies Authority reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services. Kenya Medical Supplies Authority and the Project Manager shall be notified promptly by the Contractor of an changes in the expected foreign currency requirements of the Contractor during the execution of the Works as indicated in the Schedule of Foreign Currency Requirements and the foreign and local currency portions of the balance of the Contract Price shall then be amended by agreement between Kenya Medical Supplies Authority and the Contractor in order to reflect appropriately such changes.
- 23.7 In the event that an advance payment is granted, the following shall apply:-
- a) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of 10% (ten percent) of the original amount of the Contract. The advance shall not be subject to retention money.
 - b) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or a directly liable guarantee satisfactory to Kenya Medical Supplies Authority in the amount of the advance payment. The guarantee shall be in the same currency as the advance.
 - c) Reimbursement of the lump sum advance shall be made by deductions from the Interim payments and where applicable from the balance owing to the Contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original amount of the Contract. It shall have been completed by the time 80% of this amount is reached.

The amount to be repaid by way of successive deductions shall be calculated by means of the formula:

$$R = \frac{A(x^1 - x^{11})}{80 - 20}$$

Where:

R =the amount to be reimbursed

A =the amount of the advance which has been granted

X^1 = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This figure will exceed 20% but not exceed 80%.

X^{11} = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80%but not less than 20%.

- d) with each reimbursement the counterpart of the directly liable guarantee may be reduced accordingly.

24 Compensation Events

24.1 The following issues shall constitute Compensation Events:

- (a) Kenya Medical Supplies Authority does not give access to a part of the Site by the Site Possession Date stated in the Appendix to Conditions of Contract.
- (b) Kenya Medical Supplies Authority modifies the List of Other Contractors, etc., in a way that affects the Work of the Contractor under the Contract.
- (c) The Project Manager orders a delay or does not issue drawings, specifications or instructions required for execution of the Works on time.
- (d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon the Work, which is then found to have no defects.
- (e) The Project Manager unreasonably does not approve a subcontract to be let.
- (f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to tenderers (including the Site investigation reports), from information available publicly and from a visual inspection of the Site.
- (g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by Kenya Medical Supplies Authority or additional work required for safety or other reasons.
- (h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
- (i) The effects on the Contractor of any of Kenya Medical Supplies Authority risks.
- (j) The Project Manager unreasonably delays issuing a Certificate of Completion.
- (k) Other compensation events described in the Contract or determined by the Project Manager shall apply.

- 24.2 If a compensation event would cause additional cost or would prevent the Work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.
- 24.3 As soon as information demonstrating the effect of each compensation event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.
- 24.4 The Contractor shall not be entitled to compensation to the extent that Kenya Medical Supplies Authority's interests are adversely affected by the Contractor not having given early warning or not having co-operated with the Project Manager.
- 24.5 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the Appendix to Conditions of Contract.
- 24.6 The Contractor shall give written notice to the Project Manager of his intention to make a claim within thirty days after the event giving rise to the claim has first arisen. The claim shall be submitted within thirty days thereafter.
- Provided always that should the event giving rise to the claim of continuing effect, the Contractor shall submit an interim claim within the said thirty days and a final claim within thirty days of the end of the event giving rise to the claim.

25 Price Adjustment

- 25.1 The Project Manager shall adjust the Contract Price if taxes, duties and other levies are changed between the date 30 days before the submission of tenders for the Contract and the date of Completion. The adjustment shall be the change in the amount of tax payable by the Contractor.
- 25.2 The Contract Price shall be deemed to be based on exchange rates current at the date of tender submission in calculating the cost to the Contractor of materials to be specifically imported (by express provisions in the Contract Bills of Quantities or Specifications) for permanent incorporation in the Works. Unless otherwise stated in the Contract, if at any time during the period of the Contract exchange rates shall be varied and this shall affect the cost to the Contractor of such materials, then the Project Manager shall assess the net difference in the cost of such materials. Any amount from time to time so assessed shall be added to or deducted from the Contract Price, as the case may be.
- 25.3 Unless otherwise stated in the Contract, the Contract Price shall be deemed to have been calculated in the manner set out below and in sub-clauses 25.4 and

25.5 and shall be subject to adjustment in the events specified thereunder;

(i) The prices contained in the Contract Bills of Quantities shall be deemed to be based upon the rates of wages and other emoluments and expenses as determined by the Joint Building Council of Kenya (J.B.C.) and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Appendix to Conditions of Contract.

(ii) Upon J.B.C. determining that any of the said rates of wages or other emoluments and expenses are increased or decreased, then the Contract Price shall be increased or decreased by the amount assessed by the Project Manager based upon the difference, expressed as a percentage, between the rate set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of labour incorporated within the amount of Work remaining to be executed at the date of publication of such increase or decrease.

(iii) No adjustment shall be made in respect of changes in the rates of wages and other emoluments and expenses which occur after the date of Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.

25.4 The prices contained in the Contract Bills of Quantities shall be deemed to be based upon the basic prices of materials to be permanently incorporated in the Works as determined by the J.B.C. and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Appendix to Conditions of Contract.

25.5 Upon the J.B.C. determining that any of the said basic prices are increased or decreased then the Contract Price shall be increased or decreased by the amount to be assessed by the Project Manager based upon the difference between the price set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of the relevant materials which have not been taken into account in arriving at the amount of any interim certificate under clause 23 of these Conditions issued before the date of publication of such increase or decrease.

25.6 No adjustment shall be made in respect of changes in basic prices of materials which occur after the date for Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.

25.7 The provisions of sub-clause 25.1 to 25.2 herein shall not apply in respect of any materials included in the schedule of basic rates.

26 Retention

26.1 Kenya Medical Supplies Authority shall retain from each payment due to the Contractor the proportion stated in the Appendix to Conditions of Contract until Completion of the whole of the Works. On Completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and the remaining half when the Defects Liability Period has passed and the Project Manager has certified that all defects notified to the Contractor before the end of this period have been corrected.

27 Liquidated Damages

27.1 The Contractor shall pay liquidated damages to Kenya Medical Supplies Authority at the rate stated in the Appendix to Conditions of Contract for each day that the actual Completion Date is later than the Intended Completion Date. Kenya Medical Supplies Authority may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not alter the Contractor's liabilities.

27.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rate specified in Clause 23.30.

28 Securities

28.1 The Performance Security shall be provided to Kenya Medical Supplies Authority no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a reputable bank acceptable to Kenya Medical Supplies Authority, and denominated in Kenya Shillings. The Performance Security shall be valid until a date 30 days beyond the date of issue of the Certificate of Completion.

29 Dayworks

29.1 If applicable, the Dayworks rates in the Contractor's tender shall be used for small additional amounts of Work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.

29.2 All work to be paid for as Dayworks shall be recorded by the Contractor on Forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the Work being done.

29.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

30 Liability and Insurance

- 30.1 From the Start Date until the Defects Correction Certificate has been issued, the following are the Employer's risks:
- (a) The risk of personal injury, death or loss of or damage to property (excluding the Works, Plant, Materials and Equipment), which are due to:
 - (i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works, or
 - (ii) negligence, breach of statutory duty or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor.
 - (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault Kenya Medical Supplies Authority or in Kenya Medical Supplies Authority's design, or due to war or radioactive contamination directly affecting the place where the Works are being executed.
- 30.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is the Employer's risk except loss or damage due to:
- (a) a defect which existed on or before the Completion Date.
 - (b) an event occurring before the Completion Date, which was not itself the Kenya Medical Supplies Authority's risk
 - (c) the activities of the Contractor on the Site after the Completion Date.
- 30.3 From the Start Date until the Defects Correction Certificate has been issued, the risks of personal injury, death and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Kenya Medical Supplies Authority's risk are Contractor's risks.

The Contractor shall provide, in the joint names of Kenya Medical Supplies Authority and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts stated in the Appendix to Conditions of Contract for the following events;

- (a) loss of or damage to the Works, Plant, and Materials;
- (b) loss of or damage to Equipment;
- (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract, and
- (d) personal injury or death.

- 30.4 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation required to rectify the loss or damage incurred.
- 30.5 If the Contractor does not provide any of the policies and certificates required, Kenya Medical Supplies Authority may effect the insurance which the Contractor should have provided and recover the premiums from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.
- 30.6 Alterations to the terms of insurance shall not be made without the approval of the Project Manager. Both parties shall comply with any conditions of insurance policies.

31 Completion and Taking Over

- 31.1 Upon deciding that the Works are complete, the Contractor shall issue a written request to the Project Manager to issue a Certificate of Completion of the Works. Kenya Medical Supplies Authority shall take over the Site and the Works within seven [7] days of the Project Manager's issuing a Certificate of Completion.

32 Final Account

- 32.1 The Contractor shall issue the Project Manager with a detailed account of the total amount that the Contractor considers payable to him by Kenya Medical Supplies Authority under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 30 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 30 days a schedule that states the scope of the corrections or additions that are necessary. If the final account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a Payment Certificate. Kenya Medical Supplies Authority shall pay the Contractor the amount due in the Final Certificate within 60 days.

33 Termination

- 33.1 Kenya Medical Supplies Authority or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. These fundamental breaches of Contract shall include, but shall not be limited to, the following;
- (a) the Contractor stops work for 30 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Project Manager;
 - (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days;
 - (c) the Contractor is declared bankrupt or goes into liquidation other than for a

reconstruction or amalgamation;

(d) a payment certified by the Project Manager is not paid by Kenya Medical Supplies Authority to the Contractor within 30 days (for Interim Certificate) or 60 days (for Final Certificate) of issue.

(e) the Project Manager gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;

(f) the Contractor does not maintain a security, which is required.

33.2 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under Clause 33.1 above, the Project Manager shall decide whether the breach is fundamental or not.

33.3 Notwithstanding the above, the Employer may terminate the Contract for convenience.

33.4 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible. The Project Manager shall immediately thereafter arrange for a meeting for the purpose of taking record of the Works executed and materials, goods, equipment and temporary buildings on Site.

34 Payment Upon Termination

34.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the Work done and materials ordered and delivered to Site up to the date of the issue of the certificate. Additional liquidated damages shall not apply. If the total amount due to fundamental breaches of Contract shall include, but shall not be limited to, the following; exceeds any payment due to the Contractor, the difference shall be a debt payable by the Contractor.

34.2 If the Contract is terminated for the Kenya Medical Supplies Authority convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the Work done, materials ordered, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works.

34.3 Kenya Medical Supplies Authority may employ and pay other persons to carry out and complete the Works and to rectify any defects and may enter upon the Works and use all materials on the Site, plant, equipment and temporary works.

34.4 The Contractor shall, during the execution or after the completion of the Works under this clause remove from the Site as and when required, within such reasonable time as the Project Manager may in writing specify, any temporary buildings, plant, machinery, appliances, goods or materials belonging to or hired by him, and in default Kenya Medical Supplies Authority may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, holding the proceeds less all costs incurred to the credit of the

Contractor.

Until after completion of the Works under this clause Kenya Medical Supplies Authority shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts therefore the Project Manager shall certify the amount of expenses properly incurred by Kenya Medical Supplies Authority and, if such amount added to the money paid to the Contractor before such determination exceeds the total amount which would have been payable on due completion in accordance with this Contract the difference shall be a debt payable to the Employer by the Contractor; and if the said amount added to the said money be less than the said total amount, the difference shall be a debt payable by Kenya Medical Supplies Authority to the Contractor.

35 Release from Performance

- 35.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either Kenya Medical Supplies Authority or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop Work as quickly as possible after receiving this certificate and shall be paid for all Work carried out before receiving it.

36 Corrupt Gifts and Payments of Commission

- 36.1 The Contractor shall not;
- (a) Offer or give or agree to give to any person in the service of Kenya Medical Supplies Authority any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for Kenya Medical Supplies Authority or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract for Kenya Medical Supplies Authority.
 - (b) Enter into this or any other contract with the Kenya Medical Supplies Authority in connection with which commission has been paid 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 thereof have been disclosed in writing to Kenya Medical Supplies Authority.

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 Regulations issued under The Exchequer and Audit Act Cap 412 of the Laws of Kenya.

37 Settlement Of Disputes

37.1 In case any dispute or difference shall arise between Kenya Medical Supplies Authority or the Project Manager on his behalf and the Contractor, either during the progress or after the completion or termination of the Works, such dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed 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

On the request of the applying party. The institution written to first by the aggrieved party shall take precedence over all other institutions.

37.2 The arbitration may be on the construction of this Contract or on any matter or thing of whatsoever nature arising thereunder or in connection therewith, including any matter or thing left by this Contract to the discretion of the Project Manager, or the withholding by the Project Manager of any certificate to which the Contractor may claim to be entitled to or the measurement and valuation referred to in clause 23.0 of these conditions, or the rights and liabilities of the parties subsequent to the termination of Contract.

37.3 Provided that no arbitration proceedings shall be commenced on any dispute or difference where notice of a dispute or difference has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.

37.4 Notwithstanding the issue of a notice as stated above, the arbitration of such a dispute or difference shall not commence unless an attempt has in the first instance been made by the parties to settle such dispute or difference amicably with or without the assistance of third parties. Proof of such attempt shall be required.

37.5 Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the Works or abandonment of the Works or termination of the Contract by either party:

- (a) The appointment of a replacement Project Manager upon the said person ceasing to act.

- (b) Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.
 - (c) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
 - (d) Any dispute or difference arising in respect of war risks or war damage.
- 37.6 All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless Kenya Medical Supplies Authority and the Contractor agree otherwise in writing.
- 37.7 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or included in any certificate.
- 37.8 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.
- 37.9 The award of such Arbitrator shall be final and binding upon the parties.

SPECIAL CONDITIONS OF CONTRACT

Special conditions of contract shall supplement the general conditions of contract, wherever there is a conflict between the GCC and the SCC, the provisions of the SCC herein shall prevail over those in the GCC.

Special conditions of contracts with reference to the general conditions of contract.

SECTION V
APPENDIX TO CONDITIONS OF CONTRACT
(SUBCONTRACT WORKS)

1.00	<p><u>APPENDIX TO CONDITIONS OF CONTRACT</u></p> <p>THE EMPLOYER IS:-</p> <p>Name: <u>KENYA MEDICAL SUPPLIES AUTHORITY.</u> Address: <u>P. O. BOX 47715 - 00100, NAIROBI</u> Name of Authorized Representative: <u>THE CHIEF EXECUTIVE OFFICER, KENYA MEDICAL SUPPLIES AUTHORITY</u> Telephone: Facsimile:</p> <p>THE PROJECT MANAGER IS:</p> <p>Name: <u>WORKS SECRETARY, MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING AND URBAN DEVELOPMENT, STATE DEPARTMENT OF PUBLIC WORKS</u> Address: <u>P. O. BOX 30743 – 00100, NAIROBI</u> Telephone: <u>+254 20272 3101</u> Facsimile: <u>+254 202724504</u> Email: <u>info@publicworks.go.ke</u></p> <p>The name (and identification number) of the Contract is <u>PROPOSED CONSTRUCTION OF KEMSA MODERN WAREHOUSE AND OFFICE BLOCK AT EMBAKASI, NAIROBI - Tender Ref. No GF-KEMSA-CONST -2/OIT6/2017-2018</u></p> <hr/> <p>The works in this contract comprise the construction of : Modern warehouse - 14,680 M² Office block with 1No. basement and 6No. floors – 15,758 M² Flammable goods store – 307 M² Associated Civil and External Works Associated Mechanical and Electrical Services Installations.</p> <p>The Start Date shall be <u>As agreed with the Employers.</u></p> <p>The Intended Completion Period is 130 Weeks for the whole works from the start date.</p> <hr/> <p>The Contractor shall submit a revised program for the Works within <u>Seven days</u> of delivery of the Letter of Acceptance. The Site Possession Date shall be <u>14 days from the date of acceptance letter</u></p> <p>The Site is located in Embakasi, KEMSA Land LR No. 9042/176 Embakasi.</p> <p>The Defects Liability Period is <u>180 days</u> AFTER DATE OF PRACTICAL COMPLETION.</p>
-------------	--

Other Contractors, utilities, etc., to be engaged by the Employer on the Site include those for the execution of:

1. None
2. “_____”
3. “_____”
4. “_____”

The minimum insurance covers shall be;

1. The minimum cover for insurance of the Works and of plant and Materials in respect of the Contractor’s faulty design is:10% CONTRACT SUM
2. The minimum cover for loss or damage to Equipment is:10% CONTRACT SUM
3. The minimum for insurance of other property is:10% CONTRACT SUM
4. The minimum cover for personal injury or death insurance
5. For the Contractor’s employees: AS PER WORKMAN’S COMPENSATION
6. And for other people is:5% CONTRACT SUM

The following events shall also be Compensation Events: AS STATED IN THE CONDITIONS OF CONTRACT

The period between Program updates is 30 days.

The amount to be withheld for late submission of an updated Program is Full Certificate

The proportion of payments retained is TEN PER CENT (10%) OF CERTIFIED AMOUNT

The Limit of retention is FIVE PER CENT (5%) OF CONTRACT SUM

The Minimum monthly certificate shall be in the amount of 2% (minimum) of Contract Price / Contract Sum

The Price Adjustment Clause SHALL NOT APPLY. THIS IS A FIXED PRICE CONTRACT

The liquidated damages for the whole of the Subcontract Works are KENYA SHILLINGS FIVE HUNDRED THOUSAND (KSHS.100,000.00) PER WEEK OR PART THEREOF

The Performance Security shall be for the following minimum amounts equivalent as a percentage of the Contract Price **FIVE PERCENT (5%)**.

The Completion Period for the Works is **130 Weeks**

Bidders are allowed to bid in any freely convertible currency. The rate of exchange for comparison purpose shall be the CBK rate on the tender opening date.

The schedule of basic rates used in pricing by the Contractor is as attached [*Contractor to attach*].

Clause 25.3 (KABCEC clauses) shall not apply. The bidder shall instead quote for prices from material from reputed manufacturers or suppliers for material listed.

Advance Payment **SHALL NOT** be granted. Clause 23.7 is not applicable

Special preference shall be given to the construction of the warehouse, flammable goods store, External Works and Civil works. The office block will commence upon satisfactory progression and / or on completion of the warehouse, flammable goods store, External Works and Civil works on Instruction from the Project Manager in consultation with the client. However, the Contractor will not be entitled to claims for loss of profit and other related costs / expenses in relation to delay of commencement office block

SECTION VI

STANDARD FORMS

NOTES ON THE SAMPLE FORMS

- 1 *Form of Invitation to Tender* - form to be completed by the Kenya Medical Supplies Authority
- 2 *Form of Tender* - The form of tender must be completed by the tenderer and submitted with the tender documents. It must also be duly signed by duly authorized representatives of the tenderer.
- 3 *Letter of Acceptance* this form letter will be used to communicate the award to the successful tenderer
- 4 *Form of Agreement* - The Form of Agreement shall not be completed by the tenderer at the time of submitting the tender. The Contract Form shall be completed after contract award and should incorporate the accepted contract price.
- 5 *Form-of Tender Security* - When required by the tender documents the tender shall provide the tender security either in the form included herein or in another format acceptable to the Kenya Medical Supplies Authority.
- 6 *Performance Security Form*- The performance security form should not be completed by the tenderers at the time of tender preparation. Only the successful tenderer will be required to provide performance security in the form provided herein or in another form acceptable to the Kenya Medical Supplies Authority.
- 7 *Bank Guarantee for Advance Payment Form* - When Advance payment is requested for by the successful bidder and agreed by the Kenya Medical Supplies Authority, this form must be completed fully and duly signed by the authorized officials of the bank.
- 8 *Qualification Information* - this form must be completed fully and duly signed by the bidder.
- 9 *Tender Questionnaire* - this form must be completed fully and duly signed by the bidder.
- 10 *Confidential Business Questionnaire Form* - This form must be completed by the tenderer and submitted with the tender documents.
11. *Statement of Foreign Currency Requirement* – this form is not applicable to this tender.
12. *Details of Sub-Contractors* - This form must be completed by the tenderer and submitted with the tender documents.
13. *Request for Review Form* This form shall only be used after tender evaluation if a bidder disagrees with the decisions of the Procuring Entity.
14. *Declaration of Undertaking (Integrity Statement)*

15. *Non - Debarment Declaration* - This form must be completed by the tenderer and submitted with the tender documents.
16. *Site Visit Declaration Form* – This form is for information only. A pre-bid site visit certificate has been issued elsewhere in this document and shall only be filled during the pre-bid site visit in the manner prescribed therein.

FORM OF INVITATION FOR TENDERS

_____ [date]

To: TENDERER'S NAME _____

P. O. BOX _____

Dear Sirs:

RE: _____

You have been prequalified to tender for the above project.

We hereby invite you and other prequalified tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be purchased by you from _____

Upon payment of a non-refundable fee of _____

All tenders must be accompanied by ONE (1) copy of both Technical and Financial Proposals and a security in the form and amount specified in the tendering documents, and must be delivered to _____, or be addressed to _____, _____ . Tenders will be opened immediately thereafter, in the presence of tenderers' representatives who choose to attend.

Please confirm receipt of this letter immediately in writing by cable/facsimile or telex.

Yours faithfully,

_____ Authorized Signature

_____ Name and Title

QUALIFICATION INFORMATION

1. Individual Tenderers or Individual Members of Joint Ventures

1.1 Constitution or legal status of tenderer (attach copy or Incorporation Certificate);

Place of registration: _____

Principal place of business _____

Power of attorney of signatory of tender _____

1.2 Total annual volume of construction work performed in the last five years

Year	Volume	
	Currency	Value

1.3 Work performed as Main Contractor on works of a similar nature and volume over the last five years. Also list details of work under way or committed, including expected completion date.

Project Name	Name of Client and Contact Person	Type of Work Performed and Year of Completion	Value of Contract

1.4 Major items of Contractor’s Equipment proposed for carrying out the Works. List all information requested below. Refer also to Clause 1.7(c) of the Instructions to Tenderers

Item of Equipment	Description, Make and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data. Refer also to clause 1.5(e) of the Instructions to Tenderers and Clause 9.1 of the Conditions of Contract

Position	Name	Years of experience (general)	Years of experience in proposed position

1.6 Financial reports for the last five years: balance sheets, profit and loss statements, auditor’s reports, etc. List below and attach copies.

1.7 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of supportive documents.

1.8 Name, address and telephone, telex and facsimile numbers of banks that may provide reference if contacted by Kenya Medical Supplies Authority

1.9 Statement of compliance with the requirements of Clause 1.2 of the Instructions to Tenderers.

2.0 Proposed program (work method and schedule) for the whole of the Works.

3.0 Joint Ventures

The information listed in 1.1 – 1.10 above shall be provided for each partner of the joint venture.

Attach the power of attorney of the signatory(ies) of the tender authorizing signature of the tender on behalf of the joint venture

Attach the Agreement among all partners of the joint venture (and which is legally binding on all partners), which shows that:

- a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
- b) one of the partners will be nominated as being in charge, authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture; and
- c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

Bidder's Signature: -----**Official Stamp** -----

Date: -----

TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of tenderer

2. Full address of tenderer to which tender correspondence is to be sent (unless an agent has been appointed below)

3. Telephone number (s) of tenderer

4. Facsimile number of tenderer

5. Name of tenderer's representative to be contacted on matters of the tender during the tender period

6. Details of tenderer's nominated agent (if any) to receive tender notices. This is essential if the tenderer does not have his registered address in Kenya (name, address, telephone, telex)

Signature of Tenderer

CONFIDENTIAL BUSINESS QUESTIONNAIRE FORM

You are requested to give the particulars indicated in Part 1; either Part 2(a), 2(b) or 2 (c) whichever applies to your type of business; and Part 3.

You are advised that it is a serious offence to give false information on this form.

Part 1 – General																															
1.1	Business Name																														
1.2	Location of Business Premises.																														
1.3	Plot No..... Street/Road Postal Address Tel No. Fax E mail																														
1.4	Nature of Business ,.....																														
1.5	Registration Certificate No.....																														
1.6	Maximum Value of Business which you can handle at any one time – Kshs.....																														
1.7	Name of your BankersBranch																														
Part 2 (a) – Sole Proprietor																															
2a.1	Your Name in Full Age																														
2a.2	Nationality Country of Origin • Citizenship Details																														
Part 2 (b) Partnership																															
2b.1	Given details of Partners as follows:																														
2b.2	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 30%;"><u>Name</u></th> <th style="width: 30%;"><u>Nationality</u></th> <th style="width: 20%;"><u>Citizenship Details</u></th> <th style="width: 10%;"><u>Shares</u></th> </tr> </thead> <tbody> <tr> <td>1.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.....</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		<u>Name</u>	<u>Nationality</u>	<u>Citizenship Details</u>	<u>Shares</u>	1.....					2.....					3.....					4.....									
	<u>Name</u>	<u>Nationality</u>	<u>Citizenship Details</u>	<u>Shares</u>																											
1.....																															
2.....																															
3.....																															
4.....																															
Part 2 (c) – Registered Company																															
2c.1	Private or Public																														
2c.2	State the Nominal and Issued Capital of Company- Nominal Kshs. Issued Kshs.																														
2c.3	Given details of all Directors as follows <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 30%;"><u>Name</u></th> <th style="width: 30%;"><u>Nationality</u></th> <th style="width: 20%;"><u>Citizenship Details</u></th> <th style="width: 10%;"><u>Shares</u></th> </tr> </thead> <tbody> <tr> <td>1.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.....</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5.....</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		<u>Name</u>	<u>Nationality</u>	<u>Citizenship Details</u>	<u>Shares</u>	1.....					2.....					3.....					4.....					5.....				
	<u>Name</u>	<u>Nationality</u>	<u>Citizenship Details</u>	<u>Shares</u>																											
1.....																															
2.....																															
3.....																															
4.....																															
5.....																															

Part 3 – Eligibility Status

3.1 Are you related to an Employee, Committee Member or Board Member of Kenya Medical Supplies Authority ? Yes _____ No _____

3.2 If answer in ‘3.1’ is **YES** give the relationship.
.....
.....
.....

3.3 Does an Employee, Committee Member, Board Member of Kenya Medical Supplies Authority sit in the Board of Directors or Management of your Organization, Subsidiaries or Joint Ventures? Yes _____ No _____

3.4 If answer in ‘3.3’ above is **YES** give details.
.....
.....
.....

3.5 Has your Organization, Subsidiary Joint Venture or Sub-contractor been involved in the past directly or indirectly with a firm or any of it’s affiliates that have been engaged by Kenya Medical Supplies Authority to provide consulting services for preparation of design, specifications and other documents to be used for procurement of the goods under this invitation? Yes _____ No _____

3.6 If answer in ‘3.5’ above is **YES** give details.
.....
.....
.....

3.7 Are you under a declaration of ineligibility for corrupt and fraudulent practices? YES _____ No _____

3.8 If answer in ‘3.7’ above is **YES** give details:
.....
.....
.....

3.9 Have you offered or given anything of value to influence the procurement process? Yes _____ No _____

3.10 If answer in ‘3.9’ above is **YES** give details
.....
.....
.....

I DECLARE that the information given on this form is correct to the best of my knowledge and belief.

Date Signature of Candidate

- If a Kenya Citizen, indicate under “Citizenship Details” whether by Birth, Naturalization or registration.

DECLARATION OF UNDERTAKING (INTEGRITY STATEMENT)

Anti – Corruption Policy in the Procurement Process

Undertaking By Bidder On Anti – Corruption Policy / Code of Conduct And Compliance Program

The governments of Kenya is committed to fighting corruption in all its forms and in all its institutions to ensure that all the government earned revenues are utilized prudently and for the purpose intended with a view to promoting economic development as the country work towards actualizing Vision 2030.

Here at KEMSA and also being one of the government entities mandated under the government Legal Notice number 466 of 2004 to procure, warehouse and distribute Essential Medicines and Medical Supplies to all the public health facilities in Kenya, on behalf of the government, we are highly committed to fighting any form of corruption in our organization to ensure that all the monies that the government entrust with us, is optimally and prudently utilized for the benefits of all the people we serve.

The following is a requirement that every Bidder wishing to do business with KEMSA must comply with:

- (1) Each bidder must submit a statement, as part of the tender documents, in the format given and which must be signed personally by the Chief Executive Officer or other appropriate senior corporate officer of the bidding company and, where relevant, of its subsidiary in Kenya. If a tender is submitted by a subsidiary, a statement to this effect will also be required of the parent company, signed by its Chief Executive Officer or other appropriate senior corporate officer.
- (2) Bidders will also be required to submit similar No-bribery commitments from their subcontractors and consortium partners; the bidder may cover the subcontractors and consortium partners in its own statement, provided the bidder assumes full responsibility.
- (3) a) Payment to agents and other third parties shall be limited to appropriate compensation for legitimate services.
 - b) Each bidder will make full disclosure in the tender documentation of the beneficiaries and amounts of all payments made, or intended to be made, to agents or other third parties (including political parties or electoral candidates) relating to the tender and, if successful, the implementation of the contract.
 - c) The successful bidder will also make full disclosure [quarterly or semi- annually] of all payments to agents and other third parties during the execution of the contract.
 - d) Within six months of the completion of the performance of the contract, the successful bidder will formally certify that no bribes or other illicit commissions have been paid. The final accounting shall include brief details of the goods and services provided that are sufficient to establish the legitimacy of the payments made.

- e) Statements required according to subparagraphs (b) and (d) of this paragraph will have to be certified by the company's Chief Executive Officer, or other appropriate senior corporate officer.
- (4) Tenders which do not conform to these requirements shall not be considered.
- (5) If the successful bidder fails to comply with its No-bribery commitment, significant sanctions will apply. The sanctions may include all or any of the following:
 - a) Cancellation of the contract;
 - b) Liability for damages to the public authority and/or the unsuccessful competitors in the bidding possibly in the form of a lump sum representing a pre-set percentage of the contract value (liquidated).
- (6) Bidders shall make available, as part of their tender, copies of their anti-Bribery Policy/Code of Conduct, if any, and of their-general or project - specific - Compliance Program.
- (7) The Government of Kenya through Kenya Anti-Corruption Commission has made special arrangements for adequate oversight of the procurement process and the execution of the contract. Those charged with the oversight responsibility will have full access if need be to all documentation submitted by Bidders for this contract, and to which in turn all Bidders and other parties involved or affected by the project shall have full access (provided, however, that no proprietary information concerning a bidder may be disclosed to another bidder or to the public).

1. MEMORANDUM (FORMAT)

(Clause 41, 62 and 66 of Kenya Public Procurement and Asset Disposal Act 2015)

This company _____(name of company) has issued, for the purposes of this tender, a Compliance Program copy attached -which includes all reasonable steps necessary to assure that the No-bribery commitment given in this statement will be complied with by its managers and employees, as well as by all third parties working with this company on the public sector projects or contract including agents, consultants, consortium partners, subcontractors and suppliers'")"

Authorized Signature: _____

Name and Title of Signatory: _____

NON - DEBARMENT DECLARATION

We (*insert the name of the company / supplier*) -----declares and guarantees that no director, sub-contractor or any person who has any controlling interest in our organization has been debarred from participating in a procurement proceeding.

NameSignature.....Date

Company Seal / Business Stamp

SITE VISIT DECLARATION FORM

PROPOSED CONSTRUCTION OF KEMSA WAREHOUSE AND OFFICE BLOCK

I/We.....of.....
do hereby declare that I/We have visited the site in the company of the below mentioned consultant and fully understand the scope and sequence of works.

COMPANY REPRESENTATIVE

NAME:

DESIGNATION:

Date

OFFICIAL STAMP

KEMSA REPRESENTATIVE

NAME:.....

SIGNATURE:.....

DATE:.....

OFFICIAL STAMP

Signed

Date

TENDER SECURITY FORM
(Amend accordingly if provided by Insurance Company)

Whereas[name of the tenderer]

(hereinafter called “the tenderer”)has submitted its tender dated.....[date of submission of tender] for the provision of

[name and/or description of the services]

(hereinafter called “the Tenderer”).....

KNOW ALL PEOPLE by these presents that WE.....

of.....having registered office at

[name of Procuring Entity](hereinafter called “the Bank”)are bound unto.....

[name of Procuring Entity](hereinafter called “the Procuring Entity”) in the sum of

for which payment well and truly to be made to the said Procuring Entity, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this _____ day of 20_____.

THE CONDITIONS of this obligation are:

1. If the tenderer withdraws its Tender during the period of tender validity specified by the tenderer on the Tender Form; or
2. If the tenderer, having been notified of the acceptance of its Tender by the PROCURING ENTITY during the period of tender validity:

- (a) fails or refuses to execute the Contract Form, if required; or
- (b) fails or refuses to furnish the performance security, in accordance with the instructions to tenderers;

we undertake to pay to the Procuring Entity up to the above amount upon receipt of its first written demand, without the Procuring Entity having to substantiate its demand, provided that in its demand the Procuring Entity will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of tender validity, and any demand in respect thereof should reach the Bank not later than the above date.

[signature of the bank]

DETAILS OF SUB-CONTRACTORS

If the Tenderer wishes to sublet any portions of the Works under any heading, he must give below details of the sub-contractors he intends to employ for each portion.

Failure to comply with this requirement may invalidate the tender.

(1) Portion of Works to be sublet:

(i) Full name of Sub-contractor
and address of head office:
.....
.....

(ii) Sub-contractor’s experience
of similar works carried out
in the last 3 years with
Contract value:.....
.....
.....

(2) Portion of Works to sublet:
.....

(i) Full name of Sub-contractor
and address of head office:
.....
.....

(ii) Sub-contractor’s experience
of similar works carried out
in the last 3 years with
contract value:
.....
.....

[Signature of Tenderer]

Date

BANK GUARANTEE FOR ADVANCE PAYMENT FORM

To

Gentlemen and/or Ladies:

In accordance with the payment provision included in the special conditions of contract, which amends the general conditions of contract to provide for advance payment,

.....

[name and address of tenderer][hereinafter called “the tenderer”] shall deposit with the Procuring entity a bank guarantee to guarantee its proper and faithful performance under the said clause of the contract in an amount of [amount of guarantee in figures and words].

We, the..... [bank or financial institution], as instructed by the tenderer, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the Procuring entity on its first demand without whatsoever right of objection on our part and without its first claim to the tenderer, in the amount not exceeding.....[amount of guarantee in figures and words].

We further agree that no change or addition to or other modification of the terms of the Contract to be performed thereunder or of any of the Contract documents which may be made between the Procuring entity and the tenderer, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment received by the tenderer under the Contract until [date].

Yours truly,

Signature and seal of the Guarantors _____

[name of bank or financial institution]

[address]

[date]

PERFORMANCE SECURITY FORM

To:

WHEREAS.....
.....[name of tenderer]

(hereinafter called “the tenderer”) has undertaken, in pursuance of Contract No. _____ [reference number of the contract] dated _____ 20____ to supply.....

[Description services](Hereinafter called “the contract”)

AND WHEREAS it has been stipulated by you in the said Contract that the tenderer shall furnish you with a bank guarantee by a reputable bank for the sum specified therein as security for compliance with the Tenderer’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the tenderer a guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the tenderer, up to a total of
..... [amount of the guarantee in words and figures],
and we undertake to pay you, upon your first written demand declaring the tenderer to be in default under the Contract and without cavil or argument, any sum or sums within the limits of
.....[amount of guarantee] as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the ____ day of 20____

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

_____ [date]

METHOD STATEMENT

The Tenderer is required to give a brief description herebelow of how the tenderer plans to execute the works (The tenderer may add more pages if required).

STATEMENT OF FOREIGN CURRENCY REQUIREMENTS

(See Clause 23] of the Conditions of Contract)

In the event of our Tender for the execution of _____
_____ (*name of Contract*) being accepted, we would require in
accordance with Clause 21 of the Conditions of Contract, which is attached hereto, the
following percentage:

(Figures)..... (Words).....

of the Contract Sum, (Less Fluctuations) to be paid in foreign currency.

Currency in which foreign exchange element is required:

.....

Date: The Day of 20.....

Enter 0% (zero percent) if no payment will be made in foreign currency.

Maximum foreign currency requirement shall be _____(percent) of the Contract
Sum, less Fluctuations.

(Signature of Tenderer)

LETTER OF NOTIFICATION OF AWARD

To: _____

RE: Tender No. _____

Tender Name _____

This is to notify that the contract/s stated below under the above mentioned tender have been awarded to you.

1. Please acknowledge receipt of this Letter of Notification signifying your Acceptance.

2. The Contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.

3. You may contact the officer whose particulars appear below on the subject matter of this Letter of Notification of Award.

.....
The Chief Executive Officer
Kenya Medical Supplies Authority
P. O. Box 47715 – 00100
NAIROBI.

FOR:

LETTER OF ACCEPTANCE
[letterhead paper of the Employer]

_____ *[date]*

TO: _____ (Contractor)

P. O. BOX: _____

Dear Sir,

This is to notify you that your Tender dated _____
for the execution of _____

[Name of the Contract and identification number, as given in the Tender documents] for
the Contract Price of Kshs. _____ *[amount in figures]* [Kenya Shillings

_____ *(amount in words)*

in accordance with the Instructions to Tenderers is hereby accepted.

You are hereby instructed to proceed with the execution of the said Works in accordance
with the Contract documents.

Authorized Signature:

Name and Title of Signatory:

FORM OF AGREEMENT

THIS AGREEMENT, made the _____ day of _____ 20 _____ between **KENYA MEDICAL SUPPLIES AUTHORITY** of [or whose registered office is situated at] (hereinafter called “the Procurement Entity”) of the one part AND

_____ of [or whose registered

office is situated at] _____

(hereinafter called “the Contractor”) of the other part.

WHEREAS THE Procurement Entity is desirous that the Contractor executes

_____ (name and identification number of Contract) (hereinafter called “the Works”) located at _____ [Place/location of the Works] and the Procurement Entity has

accepted the tender submitted by the Contractor for the execution and completion of such Works

and the remedying of any defects therein for the Contract Price of

Kenya Shillings _____ [Amount in figures],

Kenya Shillings _____ [Amount in words].

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.
 - (i) Letter of Acceptance
 - (ii) Form of Tender
 - (iii) Conditions of Contract Part I
 - (iv) Conditions of Contract Part II and Appendix to Conditions of Contract

- (v) Specifications
 - (vi) Drawings
 - (vii) Priced Bills of Quantities
3. In consideration of the payments to be made by the Procurement Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Procurement Entity to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Procurement Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The common Seal of _____

Was hereunto affixed in the presence of _____

Signed Sealed, and Delivered by the said _____

Binding Signature of the Procurement Entity

Binding Signature of Contractor _____

In the presence of (i) Name _____

Address _____

Signature _____

(ii) Name _____

Address _____

Signature _____

CONTRACT FORM

THIS AGREEMENT made the ___ day of ____ 20__ between..... [name of Procuring Entity] of[country of Procuring Entity] (hereinafter called “the Procuring entity”) of the one part and[name of tenderer] of[city and country of tenderer] (hereinafter called “the tenderer”) of the other part.

WHEREAS the procuring entity invited tenders for certain materials and spares. viz.....[brief description of materials and spares] and has accepted a tender by the tenderer for the supply of those materials and spares in the sum of[contract price in words and figures].

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - (a) the Tender Form and the Price Schedule submitted by the tenderer;
 - (b) the Schedule of Requirements;
 - (c) the Technical Specifications;
 - (d) the General Conditions of Contract;
 - (e) the Special Conditions of Contract; and
 - (f) the Procuring entity’s Notification of Award.
3. In consideration of the payments to be made by the Procuring entity to the tenderer as hereinafter mentioned, the tenderer hereby covenants with the Procuring entity to provide the materials and spares and to remedy defects therein in conformity in all respects with the provisions of the Contract
4. The Procuring entity hereby covenants to pay the tenderer in consideration of the provision of the materials and spares and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring entity)

Signed, sealed, delivered by _____ the _____ (for the tenderer)

in the presence of _____

FORM RB 1

REPUBLIC OF KENYA

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....APPLICANT

AND

.....RESPONDENT (*Procuring Entity*)

Request for review of the decision of the..... (*Name of the Procuring Entity*) of
.....dated the...day of20.....in the matter of Tender No.....of
.....20.....

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical
address.....Fax 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:-

By this memorandum, the Applicant requests the Board for order/orders that: -

- 1.
- 2.
- etc

SIGNED(Applicant)

Dated on.....day of/...20.....

FOR OFFICIAL USE ONLY

Lodged with the Secretary Public Procurement Administrative Review Board on
day of20.....

SIGNED
Board Secretary

SECTION B

CONDITIONS OF

SUB-CONTRACT AGREEMENT

CONDITIONS OF CONTRACT

SUB-CONTRACT AGREEMENT (KABCEC)

**AGREEMENT AND CONDITIONS
OF SUB-CONTRACT FOR
BUILDING WORKS**



Published by:
**The Kenya Association of Building and
Civil Engineering Contractors**
with the sanction of:
The Joint Building Council, Kenya
and
The Architectural Association of Kenya

June 2002 Edition

© The copyright in this document is vested in
the Kenya Association of Building and Civil Engineering
Contractors.

CONTENTS

Clause		Page
1.0	- Agreement	86
2.0	- General obligations of the Contractor	89
3.0	- General obligations of the Sub-Contractor	89
4.0	- Sub-contract documents	90
5.0	- General liability of the Sub-Contractor	90
6.0	- Insurance against injury to persons and property	90
7.0	- Performance bond	91
8.0	- Possession of site and commencement of works	92
9.0	- Project manager instructions	92
10.0	- Variations	93
11.0	- Liability for own equipment	93
12.0	- Provision of facilities by the Contractor	93
13.0	- Liability for own work	93
14.0	- Co-operation in use of facilities	94
15.0	- Assignment and subletting	94

16.0	-	Work prior to appointment of Contractor	94
17.0	-	Sub-Contractor design	94
18.0	-	Specification of goods, materials and workmanship	94
19.0	-	Compliance with statutory and other regulations	94
20.0	-	Royalties and patent rights	95
21.0	-	Antiquities and other objects of value	95
22.0	-	Suspension of works	95
23.0	-	Payments	95
24.0	-	Practical completion and defects liability	97
25.0	-	Extension of time	97
26.0	-	Loss and expense caused by disturbance of regular progress of the works	98
27.0	-	Damages for delay in completion	98
28.0	-	Fluctuations	98
29.0	-	Termination of the main contract	99
30.0	-	Termination of the Sub-contract	99
31.0	-	Settlement of disputes	100
	-	Sub-Contractor's performance bond	102
	-	Appendix	103
	-	appendix to agreement and conditions of sub-contract for building works`	104

ORIGINAL
embossed stamp

COUNTERPART
embossed stamp

1.0 AGREEMENT

1.1 This agreement is made on
between
of (or whose registered office is situated at)
.....
(hereinafter called “the Contractor”) of the one part
and
of (or whole registered office is situated at)
.....
(hereinafter called “the Sub-Contractor”) of the other part:

1.2 SUPPLEMENTAL to an agreement(hereinafter referred to as the “the main contract”)
made on
Between
.....
(hereinafter called “the Employer”) of the one part and the Contractor of the other part based on the Agreement and Conditions of Contract for Building Works, published by the Joint Building Council, Kenya
..... edition.

1.3 WHEREAS the contractor is desirous of sub-letting to the Sub-Contractor
.....
.....
.....

hereinafter called “the sub-contractor works” at.....

on Land Reference No.....being part of the main contract works.

- 1.4 And whereas the Sub-contractor has supplied the Contractor with a priced copy of the bills of quantities (hereinafter referred to as “the sub-contractor bills”), where applicable, which together with the drawings numbered.....

.....
(hereinafter referred to as “the sub-contract drawings), the specifications and the conditions of sub-contract have been signed by or on behalf of the parties thereto.

And whereas the Sub-Contractor has had reasonable opportunity of inspecting the main contract or a copy thereof except the detailed prices of the Contractor included in the bills of quantities or schedule of rates.

- 1.5 And whereas the Architect, with the approval of the Employer, has nominated the Sub-Contractor to carry out the works described at clause 1.3 herein:

NOW IT IS HEREBY AGREED AS FOLLOWS:

- 1.6 For the consideration herein stated, the Sub-Contractor shall upon and subject to the conditions annexed hereto carry out and complete the sub-contract works shown upon the sub-contract drawings and described by or referred to in the sub-contract bills, specifications and in the said conditions.

- 1.7 The Contractor shall pay the Sub-Contractor the sum of the Kshs (in words).....

.....
.....Kshs.....)
(hereinafter referred to as “the sub-contractor price”) or such sum as shall become payable hereinafter at the times and in manner specified in the said conditions.

- 1.8 The term ‘Architect’, ‘Quantity Surveyor’ and ‘Engineer’, where applicable, shall refer to the persons appointed by the Employer to administer the sub-contract in accordance with the main contract agreement. Where applicable reference to the Project Manager shall be deemed to include reference to the Engineer.

- 1.9 In the event of the need to appoint a replacement Architect, Quantity Surveyor, Engineer or other specialist (whether named in this agreement or not) the Employer shall make such appointment as soon as practicable after the need for such appointment arises and shall communicate the appointment to the Sub-Contract through the Contractor.

- 1.10 Where the sub-contract does not incorporate bills of quantities, the term “sub-contract bills” and “bills of quantities” wherever appearing shall be deemed deleted and replaced with the term “schedule of rates” as applicable.
- 1.11 The terms defined in the main contract shall have the same meaning in this sub-contract as that assigned to them therein.
- 1.12 AS WITNESS the hands of the said parties;

Signed by the said

.....(Contractor)

In the presence of

Name

Address

Signed by the said

.....(Sub-Contractor)

In the presence of

Name

Address

CONDITIONS OF SUB-CONTRACT

2.0 GENERAL OBLIGATIONS OF THE CONTRACTOR

The Contractor shall:

- 2.1 Timeously obtain from the Project Manager on behalf of the Sub-Contractor all drawings, necessary details, instructions and other information required by the Sub-Contractor for the proper carrying out of the sub-contract works.
- 2.2 Provide all such facilities and attend upon the Sub-Contractor as required and as provided in the specifications, bills of quantities and these conditions to the extent compatible with the provisions of the main contract
- 2.3 Observe, perform and comply with all the provisions of the main contract and of this sub-contract on the part of the Contractor to be observed, performed and complied with to ensure satisfactory completion of the sub-contract works.

3.0 GENERAL OBLIGATIONS OF THE SUB-CONTRACTOR

- 3.1 The Sub-Contractor shall be deemed to have notice of all the provisions of the main contract except the detailed prices of the Contractor included in the bills of quantities or in the schedule of rates.
- 3.2 The Sub-Contractor shall carry out and complete the sub-contract works in accordance with this sub-contract and in all respects to the reasonable satisfaction of the Contractor and of the Project Manager and in conformity with all reasonable directions and requirements of the Contractor regulating the due carrying out of the contract works.
- 3.3 The Sub-Contractor shall observe, perform and comply with all the provisions of the main contract on the part of the Sub-Contractor to be observed, performed and complied with so far as they relate and apply to the sub-contract works or any portion thereof and are not inconsistent with the expressions of this sub-contract as if all the same were set out herein.
- 3.4 Without prejudice to the generality of the foregoing requirements, the Sub-Contractor shall especially observe perform and comply with the provisions in the main contract as they apply to the sub-contract works

4.0 SUB-CONTRACT DOCUMENTS

- 4.1 The sub-contract documents for use in the carrying out of the sub-contract works shall be:-
 - 4.1.1 The agreement and these conditions
 - 4.1.2 The sub-contract drawings as listed in the agreement
 - 4.1.3 The sub-contract bill of quantities or schedule of rates as applicable
 - 4.1.4 The specifications as separately supplied or as contained in the sub-contract bills.

- 4.2 Upon the execution of the sub-contract, the Contractor shall register the agreement with the relevant statutory authority and pay all fees, charges, taxes, duties and all costs arising therefrom.
- 4.3 The manner of supplying contract documents, their custody, display on site and their interpretation in the event of discrepancies shall be as provided in the main contract in respect of the main contract documents with the necessary amendments made to refer to the sub-contract.

5.0 GENERAL LIABILITY OF THE SUB-CONTRACTOR

- 5.1 The Sub-Contractor shall be liable for and shall indemnify the Contractor against and from:
 - 5.1.1 Any breach, non-observance or non-performance by the Sub-Contractor, his servants or agents of any of the said provisions of the main contract and of this sub-contract.
 - 5.1.2 Any act or omission of the Sub-Contractor, his servants or agents which involve the Contractor in any liability to the Employer under the main contract
 - 5.1.3 Any claim, damage, loss or expense due to or resulting from any negligence or breach of duty on the part of the Sub-Contractor, his servants or agents.
 - 5.1.4 Any loss or damage resulting from any claim under any statute or common law by an employee of the Sub-Contractor in respect of personal injury or death arising out of or in the course of his employment.
- 5.2 Provided that nothing contained in this sub-contract shall impose any liability on the Sub-Contractor in respect of any negligence or breach of duty on the part of the Employer, the Contractor, other sub-contractors or their respective servants or agents nor create any privity of contract between the Sub-Contractor and the Employer or any other sub-contractor.

6.0 INSURANCE AGAINST INJURY TO PERSONS AND PROPERTY

- 6.1 Without prejudice to his liability to indemnify the Contractor under clause 5.0 above, the Sub-Contractor shall maintain:-
 - 6.1.1 Such insurances as are necessary to cover the liability of the Sub-Contractor in respect of injury or damage to property including damage to the works arising out of or in the course of or by reason of the carrying out of the sub-contract works except for liability against the contingencies specified at clause 6.3 herein.
 - 6.1.2 The insurances required under sub clause 6.1.1 above shall be placed with insurers approved by the Contractor and the Architect.
- 6.2 Notwithstanding the provisions of clause 23.0 of these conditions, the Contractor shall not be obliged to make payments to the Sub-Contractor before the said policies have been provided.
- 6.3 Where clause 30 of the main contract applies, the sub-contract works, including materials and goods of the sub-Contractor delivered to the works, shall as regards loss or damage by the contingencies stated at clause 30 therein, namely, fire, earthquake, fire following earthquake, lightning, explosion, storm, tempest, flood, bursting or overflowing of water tanks, apparatus or pipes, aircraft and other aerial devices or articles dropped therefrom, riot and civil commotion, be at the sole risk of the contractor. The Contractor shall cover his liability for the works by procuring insurances as required in the said clause.

- 6.4 Where clause 30 or the main contract applies, the sub-contract works, including materials and goods of the Sub-Contractor delivered to the works shall, as regards loss or damage by the contingencies stated therein be at the sole risk of the Employer. The Employer shall cover his liability for the works by procuring insurances as required in the said clause.
- 6.5 The Sub-Contractor shall observe and comply with the conditions contained in the policy or policies of insurance of the Contractor or of the Employer, as the case may be, as regards loss or damage which may be caused by the stated contingencies. For this purpose, the Contractor or the Employer as the case may be, shall avail the said policies to the Sub-Contractor for his perusal.
- 6.6 If any loss or damage affecting the sub-contract works or any part thereof or any unfixed goods or materials is occasioned by any one or more of the said contingencies, then,
- 6.6.1 The occurrence of such loss or damage shall be disregarded in computing any amounts payable to the Sub-Contractor under the sub-contract, and
- 6.6.2 The Sub-Contractor shall, with due diligence, restore the work damaged, replace or repair any unfixed materials or goods which have been destroyed or damaged, remove and dispose of any debris and proceed with the carrying out and completion of the sub-contract works.
- 6.6.3 The restoration of work damaged the replacement and repair of unfixed materials and goods and the removal of debris shall be deemed to be a variation required by the Architect. Such work shall be paid for in accordance with clause 30.0 of the main contract.

7.0 PERFORMANCE BOND

Before commencing the works, the Sub-Contractor shall provide one surety who must be an established bank or insurance company to the approval of the Contractor and who will be bound to the Contractor in the sum equivalent to five per cent (5%) of the sub-contract price for the due performance of the sub-contract until the certified date of practical completion. Notwithstanding the provisions of clause 23.0 of these conditions, no payments shall be made to the Sub-Contractor before the said bond is provided.

8.0 POSSESSION OF SITE AND COMMENCEMENT OF WORKS

- 8.1 Within the period stated in the appendix to these conditions, the Contractor shall give possession of the site works to the Sub-Contractor and such access as may be necessary to enable the Sub-Contractor to commence and proceed with the sub-contract works in accordance with the sub-contract.
- 8.2 On or before the date for commencement of works stated in the appendix to these conditions, the Sub-Contractor shall commence the carrying out of the sub-contract works and shall proceed regularly and diligently with the same in accordance with the sub-contract program, the main contract program and or with the progress of the main contract works and complete on or before the date stated in the appendix to these conditions as the date for practical completion or within any extended time granted under clause 25.0 of these conditions.

9.0 PROJECT MANAGERS INSTRUCTIONS

- 9.1 The Sub-Contractor shall forthwith comply with all the instructions issued to him by the Project manager, either directly or through the Contractor, in regard to any matter in respect of which the Project Manager is expressly empowered by the main contract conditions to issue instructions.
- 9.2 The manner of complying with or querying the validity of Project manager's instruction shall be as provided in clause 16.0 of the main contract. The Project manager shall not be obliged to carry our instructions not issued in the manner provided therein.

10.0 VARIATIONS

- 10.1 The term "variation" shall have the meaning assigned to it at clause 22.0 of the main contract.
- 10.2 The valuation of variations shall be made by the Quantity Surveyor in accordance with sub-clause 22.0 of the main contract.
- 10.3 Effect shall be given to the measurement and valuation of variations in interim certificates and by the adjustment of the sub-contract price.

11.0 LIABILITY FOR OWN EQUIPMENT

The construction equipment and other property belonging to or provided by the Sub-Contractor and brought onto the site for carrying out the works shall be at the sole risk of the Sub-Contractor. Any loss or damage to the same or caused by the same shall, except for any loss or damage due to any negligence, omission or default of the Contractor, be at the sole risk of the Sub-Contractor who shall indemnify the Contractor against loss, damage or claims in respect thereof. Insurance against any such loss, damage or claims shall be the sole responsibility of the Sub-Contractor.

12.0 PROVISION OF FACILITIES BY THE CONTRACTOR

- 12.1 Where provided in the main contract, the Contractor shall supply at his own cost all necessary water, lighting, electric power, telephones and security required for the sub-contract works. Where not so provided, the Sub-Contractor shall provide the said services at his own cost.
- 12.2 Except as otherwise provided in the main contract, the Sub-Contractor shall construct at his own expense all necessary workshops, stores, offices, workers' accommodation and other temporary buildings required for the carrying out of the works at such places on site as the Contractor shall identify. The Contractor undertakes to give the sub-Contractor the required space and all reasonable facilities for such construction. Upon practical completion of the works, the Sub-contractor shall remove the said facilities and reinstate disturbed surface to the satisfaction of the Contractor.
- 12.3 The Contractor shall provide, without charge, general attendance to the Sub-Contractor to facilitate the carrying out of the works which attendance shall include facilities for access to and movement within the site and sections or parts of the building or buildings where the sub-contract works are being carried out, the use of temporary roads, paths and access ways, sanitary and welfare facilities.

- 12.4 The Contractor shall permit the Sub-Contractor to use, without charge, at all reasonable times, any scaffolding and hoisting equipment belonging to or provided by the Contractor while it remains so erected upon the site. The use by the Sub-Contractor of any other equipment, facilities or services provided by the Contractor for the works shall be subject to private arrangements between the parties hereto and shall not be regulated by these conditions.
- 12.5 Provided that such use of the scaffolding and hoisting equipment shall be on the express condition that no warranty or other liability on the part of the Contractor shall be created or implied in regard to fitness, condition or suitability for the intended purpose except that the Sub-Contractor shall be liable for any damage caused thereto or thereby.
- 12.6 Where required, the Contractor shall provide the facilities, equipment and the like and carry out any necessary builder' works within a reasonable time of the request by the Sub-Contractor to enable timely performance of the sub-contract.

13.0 LIABILITY FOR OWN WORK

- 13.1 The Contractor and the Sub-Contractor shall be liable for the due carrying out of their respective works in accordance with their respective contracts without causing damage or injury to the works of the other sub-contractors, and in particular:
- 13.2 Should the carrying out of the sub-contract works cause injury or damage to the main contract works, or to the work of the other sub-contractors, the Sub-contractor shall rectify the damage so caused at his own cost.
- 13.3 Should the carrying out of the main contract works cause damage or injury to the sub-contract works, the Contractor shall rectify the damage at his own cost.
- 13.4 If in the course of carrying out the sub-contract works, the Sub-Contractor is required to carry out work not included in his sub-contract by reason of any materials of workmanship not being in accordance with the main contract or with other sub-contracts, the Contractor shall reimburse the Sub-Contractor the expenses incurred therein.

14.0 CO-OPERATION IN USE OF FACILITIES

- 14.1 The Contractor and the Sub-Contractor undertake to co-operate with each other and co-ordinate work arrangements and procedures required in carrying preventing interference, disruption or disturbance to the progress of the works or to the activities of other sub-contractors.
- 14.2 The Contractor and the Sub-Contractor undertake not to wrongfully use or interfere with equipment, scaffolding, appliances, ways, temporary works, temporary buildings and other property belonging to or provided by the other part or by other sub-contractors.
- 14.3 Provided that nothing contained in this clause shall prejudice or limit the rights of the Contractor or of the sub-Contractor in carrying out their respective statutory and or contractual duties under this sub-contract or under the main contract.

15.0 ASSIGNMENT AND SUBLETTING

- 15.1 Neither the Contractor nor the Sub-Contractor shall, without the written consent of the other and the Employer, assign this sub-contract.
- 15.2 The Sub-Contractor shall not sub-let the whole of the works without the written consent of the Contractor and the Project manager.
- 15.3 Provided that any assignment and any sub-contracts as well as this sub-contract shall terminate immediately upon (for whatever reason) of the main contract.

16.0 WORK PRIOR TO APPOINTMENT OF CONTRACTOR

- 16.1 Where the Sub-Contractor is appointed before the Contractor is appointed, any work done by the Sub-Contractor prior to the said appointment shall be treated as a separate contract between the Employer and the Sub-Contractor and shall be valued by the Quantity Surveyor and paid for directly by the Employer without the involvement of the Contractor.
- 16.2 Where the Sub-Contractor is appointed before the Contractor is appointed, the Sub-Contractor shall be permitted, when the identity of the Contractor is known and within 30 days thereof, to raise objections (on reasonable grounds) against entering into a sub-contract with the Contractor
- 16.3 Where work which is outside the sub-contract is ordered directly by Employer or the Architect, that work shall be treated as a separate contract between the Sub-Contractor and the Employer and shall be valued and paid for directly to the Sub-Contractor in accordance with sub-clause 16.1 herein without the involvement of the Contractor. The cost of equipment, facilities and the like provided by the Contractor to the Sub-contractor and any builder's work carried out by the Contractor with regard to such work shall be paid directly by the Sub-Contractor to the Contractor.

17.0 SUB-CONTRACTOR DESIGN

Where the sub-contract includes a design component by the Sub-Contractor, the design shall be to the approval of the Project Manager and the Employer. Notwithstanding and approvals, the Sub-Contractor shall be liable directly to the Employer for any consequences of failure of the design to comply with the requirements of the Employer or to be fit or suitable for the purposes for which the sub-contract works or the relevant part thereof were intended.

18.0 SPECIFICATION OF GOODS, MATERIALS AND WORKMANSHIP

- 18.1 All materials, goods and workmanship shall so far as procurable, be of the respective kinds and standards described in the sub-contract bills, specifications and drawings.
- 18.2 The provisions in the main contract regulating the procurement, specification and quality assurance of materials, processes and workmanship and the requirements of clause dealing with the provision of samples and the carrying out of specified tests shall apply to the sub-contract in the same manner as they apply to the main contract.

19.0 COMPLIANCE WITH STATUTORY AND OTHER REGULATIONS

The Sub-Contract shall comply with all statutory and other regulations of competent authorities regulating the carrying out of the works in accordance with the provisions in the main contract, as applicable.

20.0 ROYALTIES AND PATENT RIGHTS

20.1 All royalties or other sums payable in respect of the supply and use of any patented articles, processes or inventions in carrying out the works as described by or referred to in the sub-contract bills, specifications or drawings shall be deemed to have been included in the sub-contract price.

20.2 The provision of clause in of the main contract dealing with the same shall apply to the sub-contract in the same manner as they apply to the main contract.

21.0 ANTIQUITIES AND OTHER OBJECTS OF VALUE

All fossils, antiquities and other objects of interest or value which may be found on the site or in excavating the same during the progress of the sub-contract shall be dealt with in accordance with the provisions of the main contract.

22.0 SUSPENSION OF WORKS

22.1 An instruction by the Project Manager to postpone or suspend the works under clause 28.0 of the main contract shall have the same effect on the sub-contract works as it has on the main contract works.

22.2 If the suspension arises due to default by the contractor and the sub-contract works are adversely effected by the suspension, the sub-contractor shall be entitled to reimbursement by the contractor of all expenses arising therefrom.

22.3 If the suspension arises due to default by the sub-contractor, the sub-contractor shall be liable to the contractor for all expenses arising therefrom.

22.4 A notice by the contractor to suspend the works under clause 29.0 of the main contract shall have the same effect on the sub-contract works as it has on the main contract works.

22.5 Should the sub-contract works be adversely affected by suspension under clause in the main contract, the sub-contractor shall be entitled to the remedies provided for at clauses 25.0 and 26.0 of this sub-contract.

23.0 PAYMENTS

23.1 Procedures for originating and processing applications for payments and payment certificates as regards the sub-contract works shall be the same as those prescribed for the Contractor in the main contract at clause 34.0. references therein to the contractor shall be deemed to include references to the Sub-contractor.

23.2 Before submitting an application for payment to the Quantity Surveyor in accordance with clause 34.1 of the main contract, the Contractor shall give the Sub-Contractor a notice of not less than 7 days to submit the details of the amounts, which the Sub-Contractor considers himself entitled to for the relevant period. Such details, when received, shall be annexed to the said Contractor's application.

23.3 Where it is necessary to measure the sub-contract works for purpose of interim valuation or for the preparation of the final account, the Quantity Surveyor shall give the Sub-Contractor a reasonable opportunity to be present at the time of the measurements and to take notes and measurements as he may require.

- 23.4 Neither the Quantity Surveyor nor the Project Manager shall be bound to issue a valuation or a payment certificate in respect of the sub-contract works, as the case may be, whose value is less than the amount stated in the appendix to these conditions as the minimum amount of a payment certificate before the issue of the certificate of practical completion of the main contract or of the sub-contract, as applicable.
- 23.5 Provided that where the minimum amount of a certificate inserted in the appendix to these conditions has been achieved but the corresponding minimum inserted in the appendix to the main contract in respect of the Contractor's work has not been achieved, or the Contractor has not applied for payment within the stated period, the Project Manager may with the consent of the Contractor, issue a payment certificate directly to the Sub-Contractor for payment by the Employer.
- 23.6 Within 7 days of receipt by the Contractor of payment by the Employer, the Contractor shall notify and pay to the Sub-Contractor the total value certified therein in respect of the sub-contract works less the portion of the retention money attributable to the sub-contract works and less amounts previously paid to the Sub-Contractor.
- 23.7 Where certificates are not paid by the Employer within the prescribed period, the Sub-Contractor shall be entitled to be paid by the Contractor, upon receipt of payment from the Employer, the interest certified for the delay in accordance with sub-clause 34.6 of the main contract in respect of the portion of the sub-contract works included in the certificate.
- 23.8 a) Payment will be made through certificates direct to the subcontractor. All the subcontractors valuations claim must done through the main contractor and subsequently forwarded to the consultants . All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.
- b) In case, the Contractor has received payment from the Employer but has not released the appropriate amount to the Sub-Contractor within the stated period, the Contractor shall pay to the Sub-Contractor in addition to the amount not paid, simple interest on the unpaid amount for the period it remains unpaid at the commercial bank lending rate in force during the period of default.
- 23.9 If, upon application by the Sub-Contractor and Project Manager agree, or if the Contractor fails to make payment to the Sub-Contractor in accordance with sub-clause 23.6 herein and continues such default for 14 days thereafter, the Project Manager may issue a payment certificate directly to the Sub-Contractor for payment by the Employer, where applicable, and deduct the amount from subsequent payment to the Contractor.
- 23.10 Upon the issue of the certificate of practical completion and the release of one half of the total amount of the retention of money to the Contractor, the Contractor shall pay the portion attributable to the sub-contract to the Sub-Contractor within 7 days of receipt of the payment.
- 23.11 Upon the issue of the certificate of rectification of defects and receipt of the balance of the retention money by the Contractor, the Contractor shall pay the balance of the portion of the retention money attributable to the sub-contract to the Sub-Contractor within 7 days of receipt of the payment.
- 23.12 The sub-contract final account shall be agreed between the Sub-Contractor, the Contractor, the Quantity Surveyor and the Project Manager and shall be annexed to the Contractor's final accounts which shall be agreed as provided for in the main contract. For purpose of finalizing the accounts, the Quantity Surveyor may request the Sub-Contractor to submit further documents as he may deem necessary.

- 23.13 The final certificate issued under sub-clause 34.21 of the main contract shall be final and binding on the Sub-Contractor in the same manner it is binding on the Contractor.
- 23.14 If the Project Manager desires to secure final payment to the Sub-Contractor before final payment is due to the Contractor, the provisions of sub-clause 32.1 of the main contract shall apply.
- 23.15 The Contractor shall be entitled to deduct from or set off against any money due from him to the Sub-Contractor in interim certificates any sum or sums which the Sub-Contractor is liable to pay to the Contractor arising under or in connection with the sub-contract.

24.0 PRACTICAL COMPLETION AND DEFECTS LIABILITY

- 24.1 The Sub-Contractor shall proceed with the works regularly and diligently and complete the same within the period stated in the appendix to this sub-contract or within such extended period as may be granted under clause 25.0 of this sub-contract.
- 24.2 Where the sub-contract works are to be completed in sections or where the sub-contract works are to be completed in advance of the main contract works, the provisions of clauses in the main contract shall apply, as appropriate, to the sub-contractor in the same manner as they apply to the main contract.
- 24.3 The procedures for certifying practical completion and for dealing with defects in the sub-contract works as well as the main contract works are as prescribed in the main contract. Upon the issue of the certificate of practical completion of the whole of the works or of the sub-contract works, as applicable, the Sub-contractor shall be entitled to release of one half of the retention money attributable to the sub-contract works within 7 days after the Contractor has received payment.
- 24.4 The balance of the retention money shall be released to the Sub-Contractor after the defects appearing in the works have been rectified in accordance with the main contract condition of contract and after the Contractor has received the said payment as provided for in the main contract.

25.0 EXTENSION OF TIME

- 25.1 Upon it becoming reasonably apparent that the progress of the sub-contract works is or will be delayed, the Sub-Contractor shall forthwith give written notice of the cause of the delay to the Contractor and to the Project Manager with supporting details showing the extent of delay caused or likely to be caused. Thereafter, the Project Manager shall evaluate the information supplied by the Sub-Contractor and if in his opinion, the completion of the works is likely to be or has been delayed beyond the date for practical completion stated in the appendix to these conditions or beyond any extended time previously fixed under this clause, by any of the reasons entitling the Contractor to extension of time under sub-clause 36.1 of the main contract, then the Project Manager shall, so soon as he is able estimate the length of the delay beyond the date or time aforesaid, recommend to the Contractor a fair and reasonable extension of time to be granted for the completion of the sub-contract works.
- 25.2 Thereupon, the Contractor shall grant in writing to the Sub-Contractor the recommended time. Provided that the Contractor shall not grant any extension of time to the Sub-Contractor without the written recommendation of the Project Manager. And provided that the Sub-Contractor shall constantly use his best endeavors to prevent delay and shall do all that may be reasonably required to proceed with the works.

- 25.3 The procedures for dealing with requests for extension of time and the observance of time limits prescribed in the main contract shall apply to the sub-contract in the same manner as they apply to the main contract.

26.0 LOSS AND EXPENSE CAUSED BY DISTURBANCE OF REGULAR PROGRESS

- 26.1 If upon written application being made by the Sub-Contractor to the Contractor and to the Project Manager, the project manager is of the opinion that the Sub-Contractor has been involved in direct loss and or expense, for which he would not be reimbursed by a payment made under any other provision in this sub-contract, by reasons of the regular progress of the sub-contract works or any part thereof having been materially affected by any of the reasons which would entitle the Contractor to reimbursement under the main contract, the Quantity Surveyor shall assess the amount of such loss and or expense.
- 26.2 Any amount so assessed shall be added to the sub-contract price and if an interim certificate is issued after the date of assessment, any such amount shall be added to the amount, which would otherwise be stated as due in such certificate as regards the Sub-Contractor's entitlement.
- 26.3 The procedures for dealing with loss and or expense claims prescribed in the main contract shall apply to the sub-contract in the same manner as they apply to the main contract, as appropriate.

27.0 DAMAGES FOR DELAY IN COMPLETION

- 27.1 If the Sub-Contractor fails to complete the sub-contract works by the date for practical completion stated in the appendix to these conditions or within any extended time fixed under clause 25.0 herein, and the Engineer certifies in writing that in his opinion the same ought reasonably so to have been completed, then the Sub-Contractor shall pay or allow to the Contractor a sum calculated at the rate stated in the said appendix as liquidated damages for the period during which the works shall so remain or have remained incomplete.
- 27.2 The Contractor may deduct such sum from any money due or to become due to the Sub-Contractor under the sub-contract or recover the same from the Sub-Contractor as a debt. Provided that the Contractor shall not be entitled to recover any liquidated damages from the Sub-Contractor without first obtaining the Architect's certificate of delay prescribed herein.

28.0 FLUCTUATIONS

- 28.1 Unless otherwise stated in the sub-contract bills or specifications, the sub-contract price shall be deemed to have been calculated to include all duties and taxes imposed by statutory and other competent authorities in the country where the works are being carried out, and
- 28.2 The sub-contract price shall be deemed to be based on currency exchange rates current at the date of tender as regards materials or goods to be specifically imported for permanent incorporation in the works.
- 28.3 Should duties, taxes and exchange rates vary during the period of the contract, compensation thereof shall be calculated in accordance with sub-clause 24.5 of the main contract.

- 28.4 Compensation for change in prices of goods and materials incorporated in the works and in the rates of wages provided for in the main contract shall not apply to the sub-contract unless specifically provided for in the bill of quantities or specifications.

29.0 TERMINATION OF MAIN CONTRACT

- 29.1 If, for any reason, the contractor's employment is terminated either under clause 37.0 of the main contract, this sub-contract shall thereupon also terminate.
- 29.2 Upon termination, the sub-contractor shall cease all work and vacate the site. He shall not remove any equipment or any materials brought onto the site for the carrying out of the works without the written approval of the contractor and the project manager
- 29.3 Where the termination of the main contract occurs without the default of the sub-contractor, the sub-contractor shall be paid by the contractor for work done in the like manner as the Contractor is paid at clause 33.0 of the main contract.
- 29.4 Where the termination of main contract arises from the default by the sub-contractor, the adjustment of the sub-contract accounts shall be performed in the like manner as is provided at sub-clause 33.0 of the main contract regarding the main contract accounts.

30.0 TRMINATION OF SUB-CONTRACT.

- 30.1 Without prejudice to any other rights and remedies which the contractor may possess, if the sub-contractor shall make default in any one or more of the respects which would entitle the employer to terminate the main contract under clause 38.0 therein, the contractor shall give the sub-contractor a notice, with a copy to the Project Manager and to the employer by registered post of recorded delivery specifying the default. Should the sub-contractor continue the default for 14 days after receipt of such notice or at any time thereafter repeat such default and should the Project Manager certify that the sub-contractor is in default, the contractor may terminate the Sub-contract forthwith after the expiry of the notice provided that the notice is not given unreasonably or vexatiously. The termination letter shall be copied to the Project Manager and to the Employer.
- 30.2 Where the sub-contract is terminated due to the default of the sub-contractor as in sub-clause 30.1 herein, the adjustment of sub-contract accounts shall be performed in the like manner as is provided at sub-clause 33.0 of the main contract regarding the main contract accounts.
- 30.3 Without prejudice to any other rights and remedies which the Sub-Contractor may possess, if the Contractor shall make default in one or more of the respects which, if committed by the Employer, would entitle the contractor to terminate the main contract under clause 39.0 therein, the Sub-Contractor shall give the Contractor a notice, with a copy to the Project Manager and to the Employer, by registered post or recorded delivery specifying the default. Should the contractor continue the default for 14 days after receipt of such notice or at any time thereafter repeat such default, and should the Project Manager certify that the contractor is in default, the Sub-Contractor may terminate the sub-contract forthwith after expiry of the notice, provided that the notice is not given unreasonably or vexatiously. The termination letter shall be copied to the Project Manager and to the Employer.
- 30.4 If the Sub-Contract is terminated due to the default of the Contractor as in sub-clause 30.3 herein, the Contractor shall pay the sub-contractor for work done in the like manner

as the Contractor would be paid at sub-clause 39.5 of the main contract where the termination is done by the Contractor.

- 30.5 Where the sub-contract is terminated due to the default of the Contractor, all expenses arising from the termination shall be done wholly by the Contractor and the termination shall not create any liability on the Employer.
- 30.6 Where the sub-contract is terminated due to the default of the Sub-Contractor, the sub-contractor shall be liable to the contractor for all expenses arising therefrom.

31.0 SETTLEMENT OF DISPUTES

- 31.1 In case any dispute or difference shall arise between the Contractor and Sub-Contractor, either during the progress or after the completion or abandonment of the sub-contract works, such dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within 30 days of the notice.
- 31.2 The dispute shall be referred to the arbitration and final decision of a person to be agreed by the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointment by the Chairman or Vice Chairman of the Architectural Association of Kenya or the Chairman or Vice Chairman of The Chartered Institute of Arbitrators, Kenya Branch, at the request of the applying party.
- 31.3 The arbitration may be on the construction of this sub-contract or on any matter or thing of whatsoever nature arising thereunder or in connection therewith including the rights and liabilities of the parties during the currency of the sub-contract and subsequent to the termination of the sub-contract.
- 31.4 Where the sub-contractor is aggrieved by the manner in which the Project Manager has exercised or failed to exercise his powers stipulated in the main contract, or in the sub-contract or by any action or inaction of the Employer, and in particular, if he is aggrieved by:
 - 31.4.1 The failure or refusal of the Project Manager to recommend to the contractor an extension of sub-contract time, or
 - 31.4.2 The extend of the recommended time,
or
 - 31.4.3. The amount certified to the sub-contractor either in an interim in a final Certificate,
or
 - 31.4.4 The issue of an instruction which the sub-contractor contends is not authorized by the main contract or the sub-contract,
or
 - 31.4.5. Any other matter left to the discretion of the Project Manager in the main contract or in the sub-contract, then.
- 31.5 Subject to the Sub-Contractor giving the Contractor such indemnity and security as the Contractor may reasonably require, the Contractor shall allow the Sub-Contractor to use the contractor's name and, if necessary, shall join the Sub-Contractor in arbitration proceeding against the employer to decide the matters in dispute or in difference.

- 31.6 Provided that no arbitration proceedings shall be commenced on any dispute or difference where notice of a dispute or difference where notice of a dispute or difference has not been given by the applying party within 90 days of the occurrence or discovery of the matter or issue giving rise to the dispute or difference.
- 31.7 Notwithstanding the issue of a notice as stated above, the arbitration of such a dispute or difference shall not commence unless an attempt has in the first instance been made by the parties to settle such dispute or difference amicably with or without the assistance of third parties.
- 31.8 In any event, no arbitration shall commence earlier than 90 days after the service of the notice of a dispute or difference, except as provided for at sub-clause 31.9 herein.
- 31.9 Notwithstanding anything stated herein, the following matters may be referred to arbitration before the practical completion of the works or abandonment of the works or termination of the sub-contract without having to comply with sub clause 31.8 herein.
- 31.9.1 Whether or not the issue of an instruction by the Project Manager is authorized by the main contract or these conditions, and
- 31.9.2 Whether or not a payment certificate has been improperly withheld or is not in accordance with the main contract or these conditions or though issued, it has not been honoured.
- 31.10 All other matters in dispute shall only be referred to arbitration after the practical completion or alleged practical completion of the works or abandonment of the works or termination or alleged termination of the sub-contract, unless the project manager the contractor and the sub-contractor agree otherwise in writing.
- 31.11 The Arbitrator shall, without prejudice to the generality of his powers, have power to direct such measurements, computations, tests, or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject or included in any payment certificate.
- 31.12 The Arbitrator shall, without prejudice to the generality of his powers, have power to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion decision, requirement or notice had been given.
- 31.13 Provided that any decision of the Project Manager which is final and binding on the contractor under the main contract shall be final and binding between the contractor and the sub-contractor.
- 31.14 The award of such Arbitrator shall be final and binding upon the parties.

SUB CONTRACTOR’S PERFORMANCE BOND

BY THIS AGREEMENT we(SURETY)
of
are bound to(CONTRACTOR)
in the sum of Kenya shillings
.....(Kshs.)
to be paid by us to the said(CONTRACTOR)
WHEREAS by an agreement in writing dated
.....(SUB-CONTRACTOR)
entered into a sub-contract with(CONTRACTOR)

to carry out and complete the works therein stated in the manner and by the time therein specified all in accordance with the provisions of the said sub-contract, namely:
(description of works)
.....

NOW the condition of the above written bond is such that if the said sub-contractor, his executors, administrator, successors or assigns shall duly perform his obligations under the sub-contract, or if on default by the sub-contractor the surety shall satisfy and discharge the damages sustained by the contractor thereby up to the amount of the above written bond, then this obligation shall be void, otherwise it shall remain in full force and effect. Upon default, and without prejudice to his other rights under the sub-contract, the contractor shall be entitled to demand forfeiture of the bond and we undertake to honour the demand in the amount stated above.

PROVIDED always and it is hereby agreed and declared that no alteration in the terms of the said sub-contract or in the extend or nature of the works to be carried out and no extension of time by the contractor under the sub-contract shall in any way release the surety from any liability under the above written bond.

IN WITNESS whereof we have set out hand this..... day of
.....

Surety

Witness

Authorised by Power of Attorney No.....

APPENDIX

Clause

Name of sub-contractor’s insurers	6.0.....
Name of sub-contractor’s surety	7.0.....
Amount of surety	7.0.....
Period of possession of site	8.1.....
Date of commencement of works	8.2.....
Date for practical completion	8.2.....
Interval for application of payment certificates	23.1.....
Minimum amount of payment certificate	23.4.....
Percentage of certified value retained	23.6.....
Limit of retention fund, if any	23.6.....
Name of the sub-contractor’s bank for Purposes of interest calculation.	23.7, 23.8.....
Defects liability period	23.11.....
Period of final measurement and valuation	23.12.....
Damages of delay in completion	27.1 at the rate of Kshs. 100,000 /wk
	..

Signed by the said:

.....

.....

CONTRACTOR

SUB-CONTRACTOR

APPENDIX TO AGREEMENT AND CONDITIONS OF SUB-CONTRACT FOR BUILDING WORKS

Modify Clause 28.4

This is a fixed price contract.

SECTION C

SUB-CONTRACT PRELIMINARIES

AND

GENERAL CONDITIONS

CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

<u>CLAUSE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1.01	Examination of Tender Documents	109
1.02	Discrepancies	109
1.03	Conditions of Contract Agreement	109
1.04	Payments	109
1.05	Definition of Terms	110
1.06	Site Location	111
1.07	Duration of contract	111
1.08	Scope of contract Works	111
1.09	Extent of the Contractor’s Duties	111
1.10	Execution of the Works	112
1.11	Validity of Tender	112
1.12	Firm – Price Contract	112
1.13	Variation	112
1.14	Prime Cost and Provisional Sums	113
1.15	Bond	113
1.16	Government Legislation and Regulations	113
1.17	Import Duty and Value Added Tax	113
1.18	Insurance Company Fees	113
1.19	Provision of Services by the Main Contractor	113
1.20	Suppliers	114
1.21	Samples and Materials Generally	114
1.22	Administrative Procedure and Contractual Responsibility	114
1.23	Bills of Quantities	114
1.24	Contractor’s Office in Kenya	114

1.25	Builders Work	115
1.26	Structural Provision for the Works	115
1.27	Position of Services, Plant, Equipment, Fittings and Apparatus	115
1.28	Checking of Work	115
1.29	Setting to Work and Regulating System	116
1.30	Identification of Plant and Components	116
1.31	Contract Drawings	116
1.32	Working Drawings	116
1.33	Record Drawings (As Installed) and Instructions	118
1.34	Maintenance Manual	119
1.35	Hand – Over	119
1.36	Painting	120
1.37	Spares	120
1.38	Testing and Inspection – Manufactured Plant	120
1.39	Testing and Inspection – Installation	120
1.40	Labour Camps	120
1.41	Storage of Materials	121
1.42	Initial Maintenance	121
1.43	Maintenance and Servicing after Completion of the Initial Maintenance	121
1.44	Trade Names	121
1.45	Water and Electricity for the Works	121
1.46	Protection	121
1.47	Defects After Completion	122
1.48	Damages for Delay	122
1.49	Clear Away on Completion	122
1.50	Final Account	122
1.51	Fair Wages	122
1.52	Supervision	122

1.53	Test Certificates	123
1.54	Labour	123
155	Discounts to the Employer	123
1.56	Guarantee	123
1.57	Direct Contracts	123
1.58	Attendance Upon the Tradesmen	123
1.59	Trade Union	123
1.60	Local and other Authorities notices and fees	123
1.61	Assignment or Subletting	123
1.62	Partial Completion	124
1.63	Temporary Works	124
1.64	Patent Rights	124
1.65	Mobilization And Demobilization	124
1.66	Extended Preliminaries	124
1.67	Supervision by Engineer and Site Meetings	125
1.68	Amendment to Scope of Contract Works	125
1.69	Contractors Obligation and Employers Obligation	125
1.70	Appendix to Sub-Contract preliminaries and General conditions	126

SECTION C

SUB-CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

1.01 Examination of Tender Documents

The tenderer is required to check the number of pages of this document and should he find any missing or indistinct, he must inform the Engineer at once and have the same rectified.

All tenderers shall be deemed to have carefully examined the following:

- a) Work detailed in the Specification and in the Contract Drawings.
- b) The Republic of Kenya Document “General Conditions of Contract for Electrical and Mechanical Works”.
- c) Other documents to which reference is made.

He shall also be deemed to have included for any expenditure which may be incurred in conforming to the above items (a), (b), (c) and observe this expense as being attached to the contract placed for the whole or any part of the work.

The tenderer shall ensure that all ambiguities, doubts or obscure points of detail, are clarified with the Engineer before submission of his tender, as no claims for alleged deficiencies in the information given shall be considered after this date.

1.02 Discrepancies

The Sub-contractor shall include all work either shown on the Contract Drawings or detailed in the specification. No claim or extra cost shall be considered for works which has been shown on the drawings or in the specification alone.

Should the drawing and the specification appear to conflict, the Sub-contractor shall query the points at the time of tendering and satisfy himself that he has included for the work intended, as no claim for extra payment on this account shall be considered after the contract is awarded.

1.03 Conditions of Sub-Contract Agreement

The Sub-contractor shall be required to enter into a Sub-contract with the Main Contractor.

The Conditions of the Contract between the Main Contractor and the Sub-contractor as hereinafter defined shall be the latest edition of the Agreement and Schedule of Conditions of Kenya Association of Building and Civil Engineering Contractors as particularly modified and amended hereinafter.

For the purpose of this contract the Agreement and Schedule of Conditions and any such modifications and amendments shall read and construed together. In any event of discrepancy the modifications and amendments shall prevail.

1.04 Payment

Payment will be made through certificates direct to the subcontractor. All the subcontractors valuations claim must done through the main contractor and subsequently forwarded to the consultants . All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.

1.05 **Definition of Terms**

Throughout these contract documents units of measurements, terms and expressions are abbreviated and wherever used hereinafter and in all other documents they shall be interpreted as follows:

- i. The term “**Employer**” shall mean **Kenya Medical Supplies Authority**
- ii. The Term “**Project Manager** ” Shall Mean **Works secretary, State Department of Public Works, Ministry of Transport, Infrastructure, Housing and Urban Development**
- iii. The term “**Architect:** ” shall mean **Maestro Architects Ltd**
- iv. The term “**Quantity Surveyor**” shall mean **M & M Construction Consultants.**
- v. The term “**Civil/Structural Engineers** ” shall mean **Kiri Consult Ltd**
- vi. **Engineer:** The term “**Engineer**” shall mean **Norkun Intakes Ltd**
- vii. **Main Contractor:** The term “**Main Contractor**” shall mean the firm or company appointed to carry out the Building Works and shall include his or their heir, executors, assigns, administrators, successors, and duly appointed representatives.
- vii) **Sub-contractor:** The term “**Sub-contractor**” shall mean the persons or person, firm or Company whose tender for this work has been accepted, and who has entered into a contract agreement with the Contractor for the execution of the Sub-contract Works, and shall include his or their heirs, executors, administrators, assigns, successors and duly appointed representatives.
- viii) **Sub-contract Works:** The term “**Sub-contract Works**” shall mean all or any portion of the work, materials and articles, whether the same are being manufactured or prepared, which are to be used in the execution of this Sub-contract and whether the same may be on site or not.
- ix) **Contract Drawings:** The term “**Contract Drawings**” shall mean those drawings required or referred to herein and forming part of the Bills of Quantities.
- x) **Working Drawings:** The term “**Working Drawings**” shall mean those drawings required to be prepared by the Sub-contractor as hereinafter described.
- xi) **Record Drawings:** The term “**Record Drawings**” shall mean those drawings required to be prepared by the Sub-contractor showing “as installed” and other records for the Sub-contract Works.
- xii) **Abbreviations:**
 - CM** shall mean **Cubic Metre**
 - SM** shall mean **Square Metre**
 - LM** shall mean **Linear Metre**
 - M** shall mean **Metre**
 - LS** shall mean **Lump Sum**
 - mm** shall mean **Millimetres**
 - No.** shall mean **Number**
 - Kg.** shall mean **Kilogramme**
 - KEBS** shall mean **Kenya Bureau of Standards**
 - BS** shall mean. **Current standard British Standard Specification published by the British Standard Institution, 2 Park Street, London W1, England**

“**Ditto**” shall mean the whole of the preceding description in which it occurs.

Where it occurs in description of succeeding item it shall mean the same as in the first description of the series in which it occurs except as qualified in the description concerned.

Where it occurs in brackets it shall mean the whole of the preceding description which is contained within the appropriate brackets.

1.06 Site Location

The site of the Sub-contract Works is situated **at Embakasi Nairobi**

The tenderer is recommended to visit the site and shall be deemed to have satisfied himself with regard to access, possible conditions, the risk of injury or damage to property on/or adjacent to the site, and the conditions under which the sub-contract Works shall have to be carried out and no claims for extras will be considered on account of lack of knowledge in this respect.

1.07 Duration of Sub-Contract

The Sub-Contractor shall be required to phase his work in accordance with the Main contractor’s program (or its revision). The program is to be agreed with the Main contractor.

1.08 Scope of Sub-Contract Works

The sub-contractor shall supply, deliver, unload, hoist, fix, test, commission and hand-over in satisfactory working order the complete installations specified hereinafter and/or as shown on the Contract Drawings attached hereto, including the provision of labour, transport and plant for unloading material and storage, and handling into position and fixing, also the supply of ladders, scaffolding the other mechanical devices to plant, installation, painting, testing, setting to work, the removal from site from time to time of all superfluous material and rubbish caused by the works.

The sub-contractor shall supply all accessories, whether of items or equipment supplied by the Main Contractor but to be fixed and commissioned under this Sub-contract.

1.09 Extent of the Sub-contractor’s Duties

At the commencement of the works, the Sub-contractor shall investigate and report to the Engineer if all materials and equipment to be used in the work and not specified as supplied by the others are available locally. If these materials and equipment are not available locally, the Sub-contractor shall at this stage place orders for the materials in question and copy the orders to the Engineer. Failure to do so shall in no way relieve the Sub-contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and/or connection by the Subcontractor shall be carefully examined in the presence of the supplier before installation and connection. Any defects noted shall immediately be reported to the Engineer.

The Sub-contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on site.

The Sub-contractor shall mark accurately on one set of drawings and indicate all alterations and/or modifications carried out to the designed system during the construction period. This information must be made available on site for inspection by the Engineer.

1.10 Execution of the Works

The works shall be carried out strictly in accordance with:

- a) All relevant Kenya Bureau of Standards Specifications.
- b) All relevant British Standard Specifications and Codes of Practice (hereinafter referred to as B.S. and C.P. respectively).
- c) This Specification.
- d) The Contract Drawings.
- e) The Bye-laws of the Local Authority.
- f) The Architect's and/or Engineer's Instructions.

The Contract Drawings and Specifications to be read and construed together.

1.11 Validity of Tender

The tender shall remain valid for acceptance within 120 days from the final date of submission of the tender, and this has to be confirmed by signing the Tender Bond. The tenderer shall be exempted from this Bond if the tender was previously withdrawn in writing to the Employer before the official opening.

1.12 Firm – Price Sub-contract

Unless specifically stated in the documents or the invitation to tender, this is a firm-price Contract and the Sub-contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract. No claims will be allowed for increased costs arising from the fluctuations in duties and/or day to day currency fluctuations. The Sub-contractor will be deemed to have allowed in his tender for any increase in the cost of materials which may arise as a result of currency fluctuation during the contract period.

1.13 Variation

No alteration to the Sub-contract Works shall be carried out until receipt by the Sub-contractor of written instructions from the Project Manager.

Any variation from the contract price in respect of any extra work, alteration or omission requested or sanctioned by the Project Manager or Engineer shall be agreed and confirmed in writing at the same time such variations are decided and shall not affect the validity of the Contract. Schedule of Unit Rates shall be used to assess the value of such variations. No allowance shall be made for loss of profit on omitted works.

Where the Project Manager requires additional work to be performed, the Sub-contractor, if he considers it necessary, will give notice within seven (7) days to the Main Contractor of the length of time he (the Sub-contractor) requires over and above that allotted for completion of the Sub-contract.

If the Sub-contractor fails to give such notice he will be deemed responsible for the claims arising from the delay occasioned by reason of such extension of time.

1.14 Prime Cost and Provisional Sums

A specialist Sub-contractor may be nominated by the Project Manager to supply and/or install any equipment covered by the Prime Cost or Provisional Sums contained within the Sub-contract documents.

The work covered by Prime Cost and Provisional Sums may or may not be carried out at the discretion of the Architect.

The whole or any part of these sums utilized by the Sub-contractor shall be deducted from the value of the Sub-contract price when calculating the final account.

1.15 Bond

The tenderer must submit with his tender the name of one Surety who must be an established Bank only who will be willing to be bound to the Main Contractor for an amount equal to 5 % of the Sub-contract amount as per the Main Contract condition of contract.

1.16 Government Legislation and Regulations

The Sub-contractor's attention is called to the provision of the Factory Act 1972 and subsequent amendments and revisions, and allowance must be made in his tender for compliance therewith, in so far as they are applicable.

The Sub-contractor must also make himself acquainted with current legislation and any Government regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.

The Sub-contractor shall allow for providing holidays and transport for work people, and for complying with Legislation, Regulations and Union Agreements.

1.17 Import Duty and Value Added Tax

The Sub-contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes

1.18 Insurance Company Fees

Attention is drawn to the tenderers to allow for all necessary fees, where known, that may be payable in respect of any fees imposed by Insurance Companies or statutory authorities for testing or inspection.

No allowance shall be made to the Sub-contractor with respect to fees should these have been omitted by the tenderer due to his negligence in this respect.

1.19 Provision of Services by the Main Contractor

In accordance with Clause 1.08 of this Specification the Main Contractor shall make the following facilities available to the Sub-contractor:

- a) Attendance on the Sub-contractor and the carrying out of all work affecting the structure of the building which may be necessary, including all chasing, cutting away and making good brickwork, etc., except that all plugging for fixing, fittings, machinery, fan ducting, etc., and all drilling and tapping of steel work shall be the responsibility of the Sub-contractor. Any purpose made fixing brackets shall not constitute Builder's Work and shall be provided and installed by the Sub-contractor unless stated hereinafter otherwise.
- b) The provision of temporary water, lighting and power: All these services utilized shall be paid for by the Main Contractor. The Sub-contractor shall, however, allow for additional connections/extensions required for his purposes.
- c) Fixing of anchorage and pipe supports in the shuttering, except that all anchorage shall be
Supplied by the Sub-contractor who shall also supply the Main Contractor with fully dimensioned drawings detailing the exact locations.
- d)
 - i) Provision of scaffolding, cranes, etc. but only in so far as it is required for the Main Contract Works. It shall be the Sub-contractor's responsibility to liaise with the Main Contractor to ensure that there is maximum co-operation with other Sub-contractors in the use of scaffolding, cranes, etc.
 - ii) Any specialist scaffolding, cranes, etc. by the Sub-contractor for his own exclusive use shall be paid for by the Sub-contractor.

1.20 Suppliers

The Sub-contractor shall submit names of any supplier for the materials to be incorporated, to the Engineer for approval. The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no sources of supply will be changed without prior approval.

Each supplier must be willing to admit the Engineer or his representative to his premises during working hours for the purpose of examining or obtaining samples of the materials in question.

1.21 Samples and Materials Generally

The Sub-contractor shall, when required, provide for approval at no extra cost, samples of all materials to be incorporated in the works. Such samples, when approved, shall be retained by the Engineer and shall form the standard for all such materials incorporated.

1.22 Administrative Procedure and Contractual Responsibility

Wherever within the Specification it is mentioned or implied that the Sub-contractor shall deal direct with the Employer or Engineer, it shall mean “through the Contractor” who is responsible to the Employer for the whole of the works including the Sub-contract Works.

1.23 Bills of Quantities

The Bills of Quantities have been prepared in accordance with the standard method of measurement of Building Works for East Africa, first Edition, Metric, 1970. All the Quantities are based on the Contract Drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the Sub-contractor but the value thereof shall be deducted from the Sub-contract Sum and the value of the work ordered by the Engineer and executed there under shall be measured and valued by the Engineer in accordance with the conditions of the Sub-contract.

All work liable to adjustment under this Sub-contract shall be left uncovered for a reasonable time to allow measurements needed for such adjustment to be taken by the Quantity Surveyor or Engineer. Immediately the work is ready for measuring the Sub-contractor shall give notice to the Quantity Surveyor or Engineer to carry out measurements before covering up. If the Sub-contractor shall make default in these respects he shall, if the Project Manager so directs, uncover the work to enable the necessary measurements to be taken and afterwards reinstate at his own expense.

1.24 Sub-contractor’s Office in Kenya

The Sub-contractor shall maintain (after first establishing if necessary) in Kenya an office staffed with competent Engineer Manager and such supporting technical and clerical staff as necessary to control and coordinate the execution and completion of the Sub-contract Works.

The Engineer Manager and his staff shall be empowered by the Sub-contractor to represent him at meetings and in discussions with the Main Contractor, the Engineer and other parties who may be concerned and any liaison with the Sub-contractor’s Head Office on matters relating to the design, execution and completion of the Sub-contract Works shall be effected through his office in Kenya.

It shall be the Sub-contractor’s responsibility to procure work permits, entry permits, licenses, registration, etc., in respect of all expatriate staff.

The Sub-contractor shall prepare a substantial proportion of his Working Drawings at his office in Kenya. No reasons for delays in the preparation or submission for approval or otherwise of such drawings or proposals will be accepted on the grounds that the Sub-contractor’s Head Office is remote from his office in Nairobi or the site of the Sub-contract Works or otherwise.

1.25 Builder's Work

All chasing, cutting away and making good will be done by the Main Contractor but the Sub-contractor shall mark out in advance and shall be responsible for accuracy of the size and position of all holes and chases required.

The Sub-contractor shall drill and plug holes in floors, walls, ceiling and roof for securing services and equipment requiring screw or bolt fixings.

Any purpose made fixing brackets shall not constitute builder's work and shall be provided and installed by the Sub-contractor unless stated hereinafter to the contrary.

1.26 Structural Provision for the Works

Preliminary major structural provision has been made for the Sub-contract Works based on outline information ascertained during the preparation of the Specification.

The preliminary major structural provision made will be deemed as adequate unless the Sub-contractor stated otherwise when submitting his tender.

Any major structural provision or alteration to major structural provisions required by the Sub-contractor shall be shown on Working Drawings to be submitted to the Engineer within 30 days of being appointed.

No requests for alterations to preliminary major structural provisions will be approved except where they are considered unavoidable by the Engineer. In no case will they be approved if building work is so far advanced as to cause additional costs or delays in the work of the Main Contractor.

1.27 Position of Services, Plant, Equipment, Fittings and Apparatus

The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact siting of appliances, pipework, etc., may vary from that indicated.

The routes of services and positions of apparatus shall be determined by the approved dimensions detailed in the Working Drawings or on site by the Engineer in consultation with the Sub-contractor or the Main Contractor.

Services throughout the ducts shall be arranged to allow maximum access along the ducts and the services shall be readily accessible for maintenance. Any work which has to be re-done due to negligence in this respect shall be the Sub-contractor's responsibility.

The Sub-contractor shall be deemed to have allowed in his Sub-contract Sum for locating terminal points of services (e.g. lighting, switches, socket outlets, lighting points, control switches, thermostats and other initiating devices, taps, stop cocks) in positions plus or minus 1.2m horizontally and vertically from the locations shown on Contract Drawings. Within these limits no variations in the Sub-contract Sum will be made unless the work has already been executed in accordance with previously approved Working Drawings and with the approval of the Engineer.

1.28 Checking of Work

The Sub-contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the Sub-contract agreement and equipment supplied under other contracts before it is put into operation. Details of operation, working pressures, temperatures, voltages, phases, power rating, etc., shall be confirmed to others and confirmation received before the system is first operated.

1.29 Setting to Work and Regulating System

The Sub-contractor shall carry out such tests of the Sub-contract Works as required by British Standard Specifications or equal and approved codes as specified hereinafter and as customary.

No testing or commissioning shall be undertaken except in the presence of and to the satisfaction of the Engineer unless otherwise stated by him (Sub-contractor's own preliminary and proving tests excepted).

It will be deemed that the Sub-contractor has included in the Sub-contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required as part of the Sub-contract Works. He shall submit for approval to the Engineer a suitable programme for testing and commissioning. The Engineer and Employer shall be given ample warning in writing, as to the date on which testing and commissioning will take place.

The Sub-contractor shall commission the Sub-contract Works and provide attendance during the commissioning of all services, plant and apparatus connected under the Sub-contract Agreement or other Sub-contract Agreements, related to the project.

Each system shall be properly balanced, graded and regulated to ensure that correct distribution is achieved and where existing installations are affected, the Sub-contractor shall also regulate these systems to ensure that their performance is maintained.

The proving of any system of plant or equipment as to compliance with the Specification shall not be approved by the Engineer, except at his discretion, until tests have been carried out under operating conditions pertaining to the most onerous conditions specified except where the time taken to obtain such conditions is unreasonable or exceeds 12 months after practical completion of the Sub-contract Works.

1.30 Identification of Plant Components

The Sub-contractor shall supply and fix identification labels to all plant, starters, switches and items of control equipment including valves, with white traffolyte or equal labels engraved in red lettering denoting its name, function and section controlled. The labels shall be mounted on equipment and in the most convenient positions. Care shall be taken to ensure the labels can be read without difficulty. This requirement shall apply also to major components of items of control equipment.

Details of the lettering of the labels and the method of mounting or supporting shall be forwarded to the Engineer for approval prior to manufacture.

1.31 Contract Drawings

The Contract Drawings when read in conjunction with the text of the Specification, have been completed in such detail as was considered necessary to enable competitive tenders to be obtained for the execution and completion of the Sub-contract works.

The Contract Drawings are not intended to be Working Drawings and shall not be used unless exceptionally they are released for this purpose.

1.32 Working Drawings

The Sub-contractor shall prepare such Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the Sub-contract Works can be executed on site but also that the Engineer can approve the Sub-contractor's proposals, detailed designs and intentions in the execution of the Sub-contract Works.

If the Sub-contractor requires any further instructions, details, Contract Drawings or information drawings to enable him to prepare his Working Drawings or proposals, the Sub-contractor shall accept at his own cost, the risk that any work, commenced or which he intends to commence at site may be rejected.

The Engineer, in giving his approval to the Working Drawings, will presume that any necessary action has been, or shall be taken by the Sub-contractor to ensure that the installations shown on the Working Drawings have been cleared with the Main Contractor and any other Sub-contractors whose installations and works might be affected.

If the Sub-contractor submits his Working Drawings to the Engineer without first liaising and obtaining clearance for his installations from the Main Contractor and other Sub-contractors whose installations and works might be affected, then he shall be liable to pay for any alterations or modification to his own, the Main Contractor's or other Sub-contractor's installations and works, which are incurred, notwithstanding any technical or other approval received from the Engineer.

Working Drawings to be prepared by the Sub-contractor shall include but not be restricted to the following:

- a) Any drawings required by the Main Contractor, or Engineer to enable structural provisions to be made including Builder's Working Drawings or Schedules and those for the detailing of holes, fixings, foundations, cables and paperwork ducting below or above ground or in or outside or below buildings.
- b) General Arrangement Drawings of all plant, control boards, fittings and apparatus or any part thereof and of installation layout arrangement of such plant and apparatus.
- c) Schematic Layout Drawings of services and of control equipment.
- d) Layout Drawings of all embedded and non-embedded paperwork, ducts and electrical conduits.
- e) Complete circuit drawings of the equipment, together with associated circuit description.
- f) Such other drawings as are called for in the text of the Specification or Schedules or as the Engineer may reasonably require.

Three copies of all Working Drawings shall be submitted to the Engineer for approval. One copy of the Working Drawings submitted to the Engineer for approval shall be returned to the Sub-contractor indicating approval or amendment therein.

Six copies of the approved Working Drawings shall be given to the Main Contractor by the Sub-contractor for information and distribution to other Sub-contractors carrying out work associated with or in close proximity to or which might be affected by the Sub-contract Works.

Approved Working Drawings shall not be departed from except as may be approved or directed by the Engineer.

Approval by the Engineer of Working Drawings shall neither relieve the Sub-contractor of any of his obligations under the Sub-contract nor relieve him from correcting any errors found subsequently in the Approved Working Drawings or other Working Drawings and in the Sub-contract Works on site or elsewhere associated therewith.

The Sub-contractor shall ensure that the Working Drawings are submitted to the Project Manager for approval at a time not unreasonably close to the date when such approval is required. Late submission of his Working Drawings will not relieve the Sub-contractor of his obligation to complete the Sub-contract Works within the agreed Contract Period and in a manner that would receive the approval of the Architect.

1.33 Record Drawings (As Installed) and Instructions

During the execution of the Sub-contract Works the Sub-contractor shall, in a manner approved by the Engineer record on Working or other Drawings at site all information necessary for preparing Record Drawings of the installed Sub-contract Works. Marked-up Working or other Drawings and other documents shall be made available to the Engineer as he may require for inspection and checking.

Record Drawings, may, subject to the approval of the Engineer, include approved Working Drawings adjusted as necessary and certified by the Sub-contractor as a correct record of the installation of the Sub-contract Works.

They shall include but not restricted to the following drawings or information:

- a) Working Drawings amended as necessary but titled “Record Drawings” and certified as a true record of the “As Installed” Sub-contract Works. Subject to the approval of the Engineer such Working Drawings as may be inappropriate may be omitted.
- b) Fully dimensioned drawings of all plant and apparatus.
- c) General arrangement drawings of equipment, other areas containing plant forming part of the Sub-contract Works and the like, indicating the accurate size and location of the plant and apparatus suitability cross-referenced to the drawings mentioned in (b) above and hereinafter.
- d) Routes, types, sizes and arrangement of all pipework and ductwork including dates of installation of underground pipework.
- e) Relay adjustment charts and manuals.
- f) Routes, types, sizes and arrangement of all electric cables, conduits, ducts and wiring including the dates of installation of buried works.
- g) System schematic and trunking diagrams showing all salient information relating to control and instrumentation.
- h) Grading Charts.
- i) Valve schedules and locations suitability cross-referenced.
- j) Wiring and piping diagrams of plant and apparatus.
- k) Schematic diagrams of individual plant, apparatus and switch and control boards. These diagrams to include those peculiar to individual plant or apparatus and also those applicable to system operation as a whole.
- l) Operating Instruction

Schematic and wiring diagrams shall not be manufacturer’s multipurpose general issue drawings. They shall be prepared specially for the Sub-contract Works and shall contain no spurious or irrelevant information.

Marked-up drawings of the installation of the Sub-contract Works shall be kept to date and completed by the date of practical or section completion. Two copies of the Record Drawings of Sub-contract Works and two sets of the relay adjustment and grading charts and schematic diagrams on stiff backing shall be provided not later than one month later.

The Sub-contractor shall supply for fixing in sub-stations, switch-rooms, boiler houses, plant rooms, pump houses, the office of the Maintenance Engineer and other places, suitable valve and instructions charts, schematic diagrams of instrumentation and of the electrical reticulation as may be requested by the Engineer providing that the charts, diagrams, etc., relate to installations forming part of the Sub-contract Works. All such charts and diagrams shall be of suitable plastic material on a stiff backing and must be approved by the Engineer before final printing.

Notwithstanding the Sub-contractor's obligations referred to above, if the Sub-contractor fails to produce to the Engineer's approval, either:-

- a) The Marked-up Drawings during the execution of the Sub-contract Works or
- b) The Record Drawings, etc., within one month of the Section or Practical Completion

The Engineer shall have these drawings produced by others. The cost of obtaining the necessary information and preparing such drawings, etc., will be recovered from the Sub-contractor.

1.34 **Maintenance Manual**

Upon Practical Completion of the Sub-contract Works, the Sub-contractor shall furnish the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the Sub-contract Works.

The manual shall be loose-leaf type, International A4 size with stiff covers and cloth bound. It may be in several volumes and shall be sub-divided into sections, each section covering one Engineering service system. It shall have a ready means of reference and a detailed index.

There shall be a separate volume dealing with Air Conditioning and Mechanical Ventilation installation where such installations are included in the Sub-contract Works.

The manual shall contain full operating and maintenance instructions for each item of equipment, plant and apparatus set out in a form dealing systematically with each system. It shall include as may be applicable to the Sub-contract Works the following and any other items listed in the text of the Specifications:

- a) System Description.
- b) Plant
- c) Valve Operation
- d) Switch Operation
- e) Procedure of Fault Finding
- f) Emergency Procedures
- g) Lubrication Requirements
- h) Maintenance and Servicing Periods and Procedures
- i) Colour Coding Legend for all Services
- j) Schematic and Wiring Diagrams of Plant and Apparatus
- k) Record Drawings, true to scale, folded to International A4 size
- l) Lists of Primary and Secondary Spares.

The manual is to be specially prepared for the Sub-contract Works and manufacturer's standard descriptive literature and plant operating instruction cards will not be accepted for inclusion unless exceptionally approved by the Engineer. The Sub-contractor shall, however, affix such cards, if suitable, adjacent to plant and apparatus. One spare set of all such cards shall be furnished to the Engineer.

1.35 **Hand-over**

The Sub-contract Works shall be considered complete and the Maintenance and Defects Liability Period shall commence only when the Sub-contract Works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer and officially approved and accepted by the Employer, provided always that the handing over of the Sub-contract Works shall be coincident with the handing over of the Main Contract Works.

The procedure to be followed will be as follows:

- a) On the completion of the Sub-contract Works to the satisfaction of the Engineer and the Employer, the Sub-contractor shall request the Engineer, at site to arrange for handing over.

- b) The Engineer shall arrange a Hand-over Meeting or a series thereof, at site.
- c) The Sub-contractor shall arrange with the Engineer and Employer for a complete demonstration of each and every service to be carried out and for instruction to be given to the relevant operation staff and other representatives of the Employer.
- d) In the presence of the Employer and the Engineer, Hand-over will take place, subject to Agreement of the Hand-over Certificates and associated check lists.

1.36 Painting

It will be deemed that the Sub-contractor allowed for all protective and finish painting in the Sub-contract Sum for the Sub-contract Works, including colour coding of service pipework to the approval of the Engineer. Any special requirements are described in the text of the Specifications.

1.37 Spares

The Sub-contractor shall supply and deliver such spares suitably protected and boxed to the Engineer's approval as are called for in the Specifications or in the Price Schedules.

1.38 Testing and Inspection – Manufactured Plant

The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials.

The right of the Engineer relating to the inspection, examination and testing of plant during manufacture shall be applicable to Insurance companies and inspection authorities so nominated by the Engineer.

The Sub-contractor shall give two week's notice to the Engineer of his intention to carry out any inspection or tests and the Engineer or his representative shall be entitled to witness such tests and inspections

Six copies of all test certificates and performance curves shall be submitted as soon as possible after the completion of such tests, to the Engineer for his approval.

Plant or equipment which is shipped before the relevant test certificate has been approved by the Engineer shall be shipped at the Sub-contractor's own risk and should the test certificate not be approved new tests may be ordered by the Engineer at the Sub-contractor's expense.

The foregoing provisions relate to tests at manufacturer's works and as appropriate to those carried out at site.

1.39 Testing and Inspection -Installation

Allow for testing each section of the Sub-contract Works installation as described hereinafter to the satisfaction of the Engineer.

1.40 Labour Camps

The Sub-contractor shall provide the necessary temporary workshop and mess-room in position to be approved by the Architect.

The work people employed by the Sub-contractor shall occupy or be about only that part of the site necessary for the performance of the work and the Sub-contractor shall instruct his employees accordingly.

If practicable, W.C. accommodation shall be allocated for the sole use of the Sub-contractor's workmen and the Sub-contractor will be required to keep the same clean and disinfected, to make good any damage thereto and leave in good condition.

1.41 Storage of Materials

Space for storage will be provided by the Main contractor but the sub-contractor will be responsible for provision of any lock-up sheds or stores required.

Nominated Sub-contractors are to be made liable for the cost of any storage accommodation provided specially for their use. No materials shall be stored or stacked on suspended slabs without the prior approval of the Project manager.

1.42 Initial Maintenance

The sub-contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of moving parts. A monthly report of the inspection and any works done upon the installation shall be supplied to the Engineer.

The sub-contractor shall also provide a 24 -hour break-down service to attend to faults on or malfunctioning of the installation between the routine visits of inspection.

The sub-contractor shall allow in the sub-contract Sum of the initial maintenance, inspection and break-down service and shall provide for all tools, instruments, plant and scaffolding and the transportation thereof, as required for the correct and full execution of these obligations and the provision, use or installation of all materials as oils, greases, sandpaper, etc., or parts which are periodically renewed such as brake linings etc., or parts which are faulty for any reason whatsoever excepting always Acts of God such as storm, tempest, flood, earthquake and civil revolt, acts of war and vandalism.

1.43 Maintenance and Servicing After Completion of the Initial Maintenance

The sub-contractor shall, if required, enter into a maintenance and service agreement with the employer for the installation for a period of up to five years from the day following the last day of the liability for Defects Period which offers the same facilities as specified in Clause 1.42 (Initial Maintenance).

The terms of any such agreement shall not be less beneficial to the employer than the terms of Agreements for either similar installation.

The sub-contractor shall submit with his tender for the works, where called upon a firm quotation for the maintenance and service of the installation as specified herein, which shall be based upon the present day costs and may be varied only to take into account increases in material and labour unit rate costs between the time of tendering and the signing of the formal maintenance and service agreement and which shall remain valid and open for acceptance by the Employer to and including the last day of the fifth complete calendar month following the end of the liability for Defects Period.

1.44 Trade Names

Where trade names of manufacturer's catalogue numbers are mentioned in the Specification or the Bills of Quantities, the reference is intended as a guide to the type of article or quality of material required. Alternate brands of equal and approved quality will be acceptable.

1.45 Water and Electricity for the Works

These will be made available by the Main Contractor. The Sub-contractor shall be liable for the cost of any water or electric current used and for any installation provided especially for their own use by the Main Contractor.

1.46 Protection

The sub-contractor shall adequately cover up and protect his own work to prevent injury and also to cover up and protect from damage all parts of the building or premises where work is performed by him under the Contract.

1.47 Defects After Completion

The defects liability period will be 6 months from the date of completion of the Main Contract as certified by the Engineer.

1.48 Damages for Delay

Liquidated and Ascertained damages as stated in the Main Contract Agreement will be claimed against the Main Contract for any unauthorised delay in completion. The Sub-contractor shall be held liable for the whole or a portion of these damages should he cause delay in completion.

1.49 Clear Away on Completion

The sub-contractor shall, upon completion of the works, at his own expense, remove and clear away all plant, equipment, rubbish and unused materials, and shall leave the whole of the works in a clean and tidy state, to the satisfaction of the Engineer. On completion, the whole of the works shall be delivered up clean, complete and perfect in every respect to the satisfaction of the Engineer.

1.50 Final Account

On completion of the works the sub-contractor shall agree with the Engineer the value of any variations outstanding and as soon as possible thereafter submit to the Engineer his final statement of account showing the total sum claimed sub-divided as follows:

Statement A - detailing the tender amounts less the Prime Cost and Provisional Sums, included therein.

Statement B - detailing all the variation orders issued on the contract.

Statement C - Summarizing statement A and B giving the net grand total due to the Contractor for the execution of the Contract.

1.51 Fair Wages

The sub-contractor shall in respect of all persons employed anywhere by him in the execution of the sub-contract, in every factory, workshop or place occupied or used by him for execution of the Contract, observe and fulfill the following conditions:

- a) The sub-contractor shall pay rates of the wages and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where work is carried out.
- b) In the absence of any rates of wages, hours or conditions of labour so established the sub-contractor shall pay rates and observe hours and conditions of labour are not less favourable than the general level of wages, hours and conditions observed by other employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.

1.52 Supervision

During the progress of the works, the Sub-contractor shall provide and keep constantly available for consultation on site an experienced English - speaking Supervisor and shall provide reasonable office facilities, attendance, etc., for the Supervisor.

In addition, during the whole of the time the works are under construction, the sub-contractor shall maintain on site one experienced foreman or charge-hand and an adequate number of fitters, etc., for the work covered by the Specification. The number of this staff shall not be reduced without the prior written approval of the Project manager or Engineer.

Any instructions given to the Supervisor on site shall be deemed to have been given to the sub-contractor.

One copy of this Specification and one copy of each of the Contract Drawings (latest issue) must be retained on site at all times, and available for reference by the Engineer or sub-contractor.

1.53 Test Certificates

The Sub-contractor shall provide the Engineer with three copies of all test reports or certificates that are or may be required by this Specification.

1.54 Labour

The Sub-contractor shall provide skilled and unskilled labour as may be necessary for completion of the contract.

1.55 Discount to the Main Contractor

No discount to the Main Contractor will be included in the tender for this installation.

1.56 Guarantee

The whole of the work will be guaranteed for a period of six months from the date of the Engineer's certification of completion and under such guarantee the Sub-contractor shall remedy at his expense all defects in materials and apparatus due to faulty design, construction or workmanship which may develop in that period.

1.57 Direct Contracts

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 instance, profit relative to the P.C Sum in the priced Bills of Quantities will be adjusted as deserved for P.C Sum allowed.

1.58 Attendance Upon the Tradesmen etc

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 the use of ordinary scaffolding. The contractor however, shall not be required to erect any special scaffolding for them.

1.59 Trade Unions

The contractor shall recognize the freedom of his work people to be members of trade unions.

1.60 Local and other Authorities notices and fees

The contractor shall comply with and give all notices required by any Regulations, Act or by Law of any Local Authority or of any Public Service, Company or Authority who have any jurisdiction with regard to the works or with those systems the same are or will be connected and he shall pay and indemnify the Government against any fees or charges legally demandable under any regulation or by-law in respect of the works; provided that the said fees and charges if not expressly included in the contract sum or stated by way of provisional sum shall be added to the contract sum.

The contractor before making any variation from the contract drawings or specification necessitated by such compliance shall give the Project Manager written notice specifying and giving the reason for such variation and applying for instructions in reference thereto.

If the contractor within seven days of having applied for the same does not receive such instructions, he shall proceed with the works in conforming to the provision regulation or by-law in question and any variation thereby necessitated shall be deemed to be a variation in accordance to the conditions of contract.

1.61 Assignment or subletting

The contractor shall not without the written consent of the Project Manager assign this contract or sublet any portion of the works, provided that such consent shall not be unreasonably withheld to the prejudice of the contractor.

1.62 Partial Completion

If the Government shall take over any part or parts works, apparatus, equipment etc. then within seven days from the date on which the Government shall have taken possession of the relevant part, the Project Manager shall issue a Certificate stating his estimate of the approximate total value of the works which shall be the total value of that part and practical completion of the relevant part shall be deemed to have occurred, and the Defects Liability Period in respect of the relevant part be deemed to have commenced on the date Government shall have taken possession thereof.

The contractor shall make good any defects or other faults in the relevant part that had been deemed complete.

The contractor shall reduce the value of insurance by the full value of the relevant part

The contractor shall be paid for the part of works taken possession by the Government

1.63 Temporary Works

Where temporary works shall be deemed necessary, such as Temporary lighting, the contractor shall take precaution to prevent damage to such works.

The contractor shall include for the cost of and make necessary arrangements with the Project Manager for such temporary works. For temporary lighting, electricity shall be metered and paid for by the contract

1.64 Patent Rights

The contractor shall fully indemnify the Government of Kenya; against any action, claim or proceeding relating to infringement of any patent or design rights, and pay any royalties which may be payable in respect of any article or any part thereof, which shall have been supplied by the contractor to the Project Manager. In like manner the Government of Kenya shall fully indemnify the contractor against any such action, claim or proceedings for infringement under the works, the design thereof of which shall have been supplied by the Project Manager to the contractor, but this indemnify shall apply to the works only, and any permission or request to manufacture to the order of the Project Manager shall not relieve the contractor from liability should he manufacture for supply to other buyers.

1.65 Mobilization and Demobilization

The contractor shall mobilize labour plant and equipment to site according to his programme and schedule of work. He shall ensure optimum presence and utilization of labour, plant and equipment. He should not pay and maintain unnecessary labour force or maintain and service idle plant and equipment. Where necessary he shall demobilize and mobilize the labour, plant and equipment, as he deems fit to ensure optimum progress of the works and this shall be considered to be a continuous process as works progress. He shall make provision for this item in his tender. No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities or elsewhere in this tender.

1.66 Extended Preliminaries

Where it shall be necessary to extend the contract period by the Project manager the contractor shall still ensure availability on site, optimum labour, materials, plant and equipment. The contractor shall make provision for extended preliminaries, should the contract period be extended and this shall be in a form of a percentage of the total Contractor works. Where called upon in the Appendix to these Preliminaries the Contractor shall insert his percentage per month for extended preliminaries that shall form basis for compensation.

Lack of inserting the percentage shall mean that the sub-contractor has provided for this requirement elsewhere in the Bills of Quantities.

1.67 Supervision by Engineer and Site Meetings

A competent Project Engineer appointed by the Engineer as his representative shall supervise the Contract works. The Project Engineer shall be responsible for issuing all the site instructions in any variations to the works and these shall be delivered through the Contractor with the authority of the Project Manager. Any instructions given verbal shall be confirmed in writing.

The project engineer and (or) the Engineer shall attend management meetings arranged by the Project Manager and for which the Contractor or his representative shall also attend. For the purpose of supervising the project, provisional sums are provided to cover for transport and allowances. The Contractor shall in his tender allow for the provision of management meetings and site inspections, as instructed by the Engineer, and also profit and attendance on these funds. The funds shall be expended according to Project Manager's instructions to the contractor.

1.68 Amendment to Scope of Contract Works

No amendment to scope of sub-contract works is expected and in case of amendment or modification to scope of work, these shall be communicated to all tenderers in sufficient time before the deadline of the tender submission. However during the contract period and as the works progress the Project Manager may vary the works as per conditions of contract by issuing site instructions.

No claims shall be entertained on account of variation to scope of works either to increase the works (pre-financing) or reduction of works (loss of profit-see clause 1.70)

1.69 Contractor Obligation and Employers Obligation

The sub-contractor will finance all activities as part of his obligation to this contract. The employer shall pay interim payment for materials and work completed on site as his obligation in this contract, as the works progresses. No claims will be entertained for pre-financing of the project by the sub-contractor, or for loss of profit (expectation loss) in case of premature termination, reduction or increase of works as the sub-contractor shall be deemed to have taken adequate measures in programming his works and expenditure and taken necessary financial precaution while executing the works. No interest shall be payable to the Contractor, except as relates to late payment as in the conditions of contract clause 23.3. The contractor shall where called upon, insert his price to compensate for any of the occurrence stated here (premature termination, reduction or increase of works), as a percentage of the contract sum in the Appendix to this section.

1.70 **APPENDIX TO SUB-CONTRACT PRELIMINARIES AND GENERAL CONDITIONS**

1. ADD TO CLAUSE 1.17

Prices quoted shall include **16% VAT**

In accordance with current Government policy, the **3% Withholding Tax** and **6% advance V,A.T** shall be deducted from all payments made to the sub-contractor, and the same shall subsequently be forwarded to the Kenya Revenue Authority (KRA). The applicable taxes shall be varied according to the Act and Regulations in force.

PART 02:

PARTICULAR SPECIFICATIONS FOR ELECTRICAL & FIRE ALARM INSTALLATIONS

**ELECTRICAL
INSTALLATIONS
PARTICULAR
SPECIFICATIONS**

2a. 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 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. 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 Egateube 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 / XLPE 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 (XLPE) 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 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 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 gasketed 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, timers, 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 shakeproof 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 handle 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 sleeves 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 1.5mm² 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, 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 1.5mm².

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, 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 2.5mm² for ring main circuits.

19. FIRE ALARM INSTALLATIONS (Where Applicable)

The installation for the above shall be carried out using fire tuff 1.5mm² 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, 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, box, wiring in 3x1.5mm² PVC / XLPE S/C CU cables and all accessories, 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 6x2.5mm² 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, 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 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.

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.

2b. PARTICULAR QUALIFICATION FOR BIDDERS – ELECTRICAL INSTALLATIONS

TABLE 01:

NOTE: All Attachments should be bound in 1No. document with fliers separating the particular sections which shall be presented as part of the Bid. **Presentation shall follow the order stated below.**

BIDDERS REQUIREMENTS			
Item	Feature	Minimum Requirements	Bidder's Response / Comment (or X)
A	<u>MANDATORY REQUIREMENTS FOR BID EVALUATION</u>		
A1	Company / Firm Registration Certificate	Attach Certificate	
A2	Registration with Relevant Bodies & Category as Applicable		
	(Note: For any document Listed, Documentary Evidence of the Certificate Should be attached)		
		NCA	
		LOCAL AUTHORITY	
		P.I.N. Registration Certificate	
		VAT Registration Certificate	
		Tax Compliance Certificate	
		ERC	
		Manufacturers Authorization Letter	
		OTHER (Fill in Pen)	
A3	Company Profile A detailed soft company profile indicating the principle place of business MUST be attached to the Bid (Hard Copy or Soft copy in CD / USB Flash drive)	Attach Copy	
A4	Power of attorney of signatory of Bid (if Joint Venture)	Attach Copy	
A5	Long Lead Items Program of Works: Bidder to attach a Proposed program (Work method and schedule), Descriptions, drawings, and charts, as necessary, which show the lead times for the long lead items timelines	Attach	

BIDDERS REQUIREMENTS			
Item	Feature	Minimum Requirements	Bidder's Response / Comment (or X)
A6	Indicate Total Annual Revenue of Construction work performed in the last 3 years in KShs. <ul style="list-style-type: none"> Attach Proof of Financial Statements Attach Bank Contacts: Name, Address & Telephone Numbers of the banks that may provide references if contacted by Employer 	2014	
		2015	
		2016	
B	<u>OTHER REQUIREMENTS</u>		
B1	Brochures of Equipment's offered	Attach with all details	
B2	Financial Resources Access: <ul style="list-style-type: none"> Evidence of access to Financial Resources to meet the qualification requirements: cash in hand, lines of credit, etc. List here as appropriate & Note that Proof in Documentary Evidence may be require to be provided upon request 	Attach	
B3	Equipment Guarantee (By bidder) and warranty period specified by manufacturer Note: Minimum of 24 Months is required Note: Schedule to be attached of all equipment on warranty	Attach: Note: Warranty shall be specific from date of completion of project.	
B4	Annual Maintenance Charges <ul style="list-style-type: none"> After Expiry of DLP and Warranty Period, Indicate the proposed charges to be levied for annual maintenance of equipment & accessories NOTE: The above are to be Labour only charges excluding parts which shall be fitted only with prior approval by the client. 	1 st Year (KShs.)	<u>Kshs.</u>
		2 nd Year (KShs.)	<u>Kshs.</u>
		3 rd Year (KShs.)	<u>Kshs.</u>
B5	Foreign Currency	State Foreign currency used in the pricing (if any) and rate of exchange to KShs.	1..... (Foreign Currency) = KShs.
BIDDERS REQUIREMENTS			
Item	Feature	Minimum	Bidder's Response /

		Requirements	Comment (or X)
B6	Response Time	In event of emergency, the response time shall be how many hours (Preferred is 3 Hours) Hours
B7	Delivery Period of Equipment from Date of Award (Fill Where Applicable)		
		Days	
		Weeks	
		Months	
		Years	
B8	Delivery Period of Site Works from Date of Award (Fill Where Applicable)		
		Days	
		Weeks	
		Months	
		Years	

TABLE 02:

1.11 Work of a similar nature and volume performed as Prime Contractor over the last five years. The values should be indicated in the same currency used above. Also list details of work under way or committed, including expected completion date.				
PROJECT NAME & COUNTRY	CLIENT / CONTACT PERSON	LEAD CONSULTANT	TYPE OF WORK DONE & YEAR OF COMPLETION	CONTRACT VALUE (KShs.)

TABLE 03:

1.12 Qualification and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.			
POSITION	NAME	QUALIFICATIONS	YEARS OF EXPERIENCE IN PROPOSED POSITION
PROJECT MANAGER			
SITE FOREMAN			
OTHER(S)			

TABLE 04:

1.13 Proposed contracts and firms involved.			
SECTION OF THE WORKS	VALUE OF CONTRACT	CONTRACTOR (NAME & ADDRESS)	EXPIRIENCE IN SIMILAR WORK

TABLE 05:

1.14 Information on current litigation in which the Bidder is involved.		
OTHER PARTY(IES)	CAUSE OF DISPUTE	AMOUNT INVOLVED

TABLE 06:

1.15	Additional Requirements:	
	Bidders should provide any additional information required in these documents to fulfill the requirements thereof if applicable	

Signed (As in form of Tender) _____

Official Stamp & Date _____

2c. SPECIAL NOTES TO ALL TENDERERS – ELECTRICAL

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 _____

FIRE ALARM

PARTICULAR

SPECIFICATIONS

2d. 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”

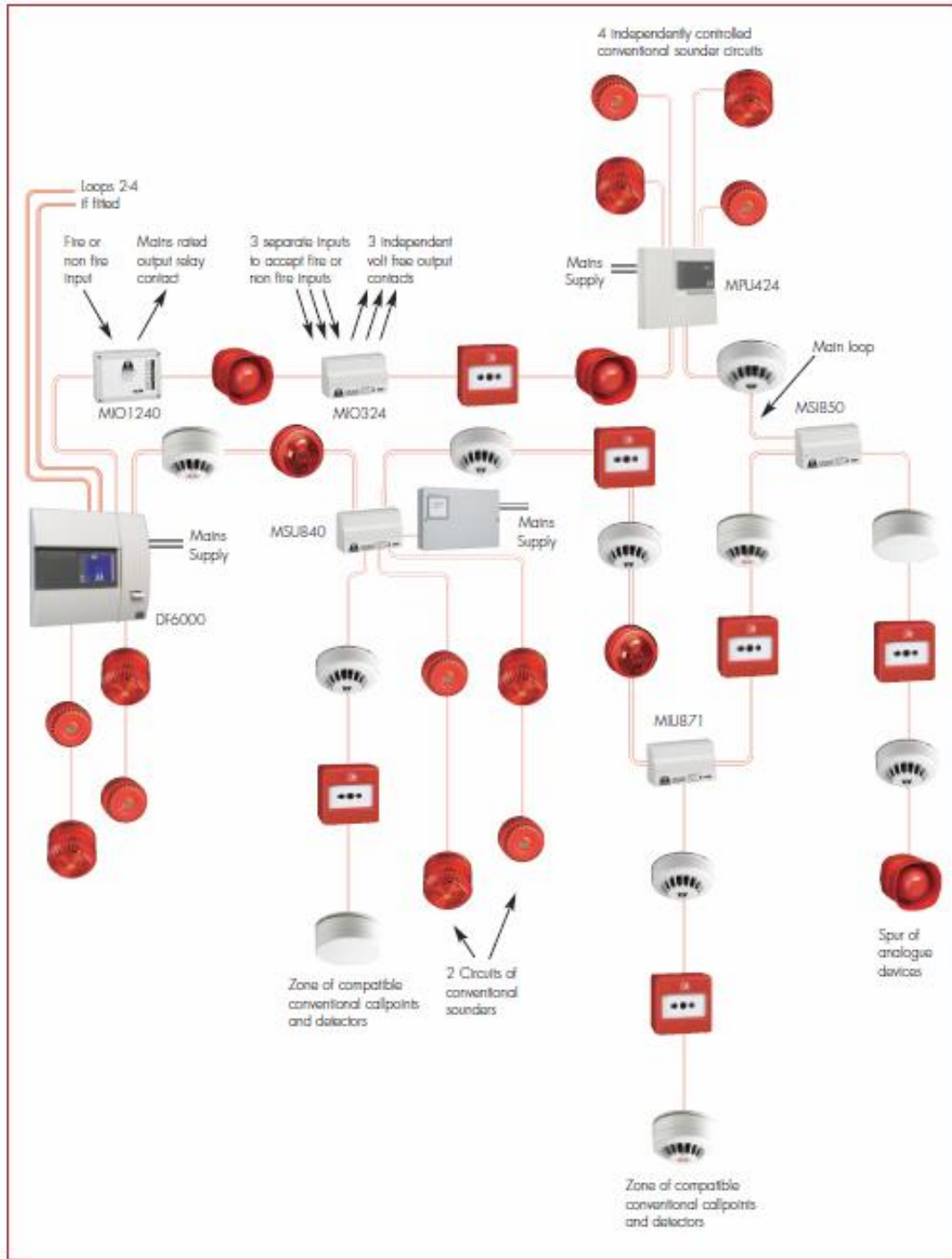
FIRE ALARM CABLING

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 1.5mm² 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 colour
- 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 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)
<u>GENERAL</u>		
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	
<u>COVERS</u>		
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)	
<u>DISPLAY</u>		
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	
<u>PRINTER</u>		
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.	
<u>ELECTRICAL / POWER</u>		
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	
<u>DETECTION CAPACITY</u>		
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	
<u>ALARM CAPACITY</u>		
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	
<u>SYSTEM FUNCTIONALITY</u>		
Modes	Panel should have 3 modes of operation: <ul style="list-style-type: none"> • 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	
Communication	Panel should drive communication from both ends of the loop thus maintaining full communication with all devices	
<u>INTERFACE OPTIONS</u>		
Outputs	<ul style="list-style-type: none"> • Monitored output to fire routing equipment • Monitored output to fire protection equipment • Monitored output to fault monitoring equipment 	
Inputs	<p>Multiple Programmable remote inputs (up to 180 per panel) can be set for:</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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	
<u>COVERS</u>		
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)	
<u>DISPLAY</u>		
Screen	2 Line 40 Character backlit LCD	
Pushbuttons	Additional dedicated pushbuttons should be allowed if required.	
<u>ELECTRICAL / POWER</u>		
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	
<u>SYSTEM FUNCTIONALITY</u>		
Modes	Panel should have 3 modes of operation: <ul style="list-style-type: none"> • Normal Mode • Supervisor • Engineer mode 	
Access	User maintenance & Engineer mode should only be accessed by	

	<p>entering relevant pass codes</p> <p>Supervisor mode allows silence, evacuate and reset commands to be sent to host panel (loop connected) or to network (network connected)</p> <p>Engineer mode enables password to be changed if required and allows access to text download menu</p>	
Networking	<p>When connected to network, all text is transmitted via network, changes to other network panels update automatically</p> <p>When connected to a detector loop, text for host is downloaded to repeater and updated manually as required</p>	
Indication	<p>Zonal fire and fault indication is by means of 2 line LCD display</p>	
<u>ENVIROMENTAL</u>		
Temp. range	<p>IP30. -5°C to +40°C. Humidity 75% max (non-condensing)</p>	

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)
<u>GENERAL</u>		
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	
<u>PARTICULAR SPECIFICATIONS</u>		
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: <ul style="list-style-type: none"> • Global triggering • Triggering by specific devices or zones • Delay before activation • Pulsing or continuous operation 	
Input Functions	Input can be used to <ul style="list-style-type: none"> • Trigger a fire or fault • Trigger on evacuate • Control day/night mode • Isolate pre assigned group of addresses 	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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	
<u>PARTICULAR SPECIFICATIONS</u>		
Inputs	2 minimum <ul style="list-style-type: none"> • 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	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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	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 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	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
Type	Addressable	
Functionality	Programmable from the panel to operate in three modes: <ul style="list-style-type: none"> • 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	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 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	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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 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	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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	
<u>ENVIROMENTAL</u>		
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 RESETTABLE 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)
<u>GENERAL</u>		
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	
<u>ENVIROMENTAL</u>		
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)
<u>GENERAL</u>		
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 <ul style="list-style-type: none"> • Continuous 984Hz • Pulsed 984 / 0Hz pulse 1Hz 	

	<ul style="list-style-type: none"> • Two Tone 644 / 984Hz @ 1Hz cycle • Slow whoop 500-1200Hz in 3.5 seconds / 0.5secs gap 	
Volume @ ± 3dB	To be settable at panel <ul style="list-style-type: none"> • 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	
<u>ENVIROMENTAL</u>		
Temp. range	-10°C to +55°C	

=====

2e. PARTICULAR QUALIFICATION FOR BIDDERS – FIRE ALARM

TABLE 01:

NOTE: All Attachments should be bound in 1No. document with fliers separating the particular sections which shall be presented as part of the Bid

BIDDERS REQUIREMENTS			
Item	Feature	Minimum Requirements	Bidder's Response / Comment (or X)
A	<u>MANDATORY REQUIREMENTS FOR BID EVALUATION</u>		
A1	Company / Firm Registration Certificate	Attach Certificate	
A2	Registration with Relevant Bodies & Category as Applicable		
	(Note: For any document Listed, Documentary Evidence of the Certificate Should be attached)		
		NCA	
		LOCAL AUTHORITY	
		P.I.N. Registration Certificate	
		VAT Registration Certificate	
		Tax Compliance Certificate	
		Manufacturers Authorization Letter	
		OTHER (Fill in Pen)	
A3	Company Profile A detailed soft company profile indicating the principle place of business MUST be attached to the Bid (Hard Copy or Soft copy in CD / USB Flash drive)	Attach Copy	
A4	Power of attorney of signatory of Bid (if Joint Venture)	Attach Copy	
A5	Long Lead Items Program of Works: Bidder to attach a Proposed program (Work method and schedule), Descriptions, drawings, and charts, as necessary, which show the lead times for the long lead items timelines	Attach	

BIDDERS REQUIREMENTS			
Item	Feature	Minimum Requirements	Bidder's Response / Comment (or X)
A6	Indicate Total Annual Revenue of Construction work performed in the last 3 years in KShs. <ul style="list-style-type: none"> • Attach Proof of Financial Statements • Attach Bank Contacts: Name, Address & Telephone Numbers of the banks that may provide references if contacted by Employer 	2014	
		2015	
		2016	
B	<u>OTHER REQUIREMENTS</u>		
B1	Brochures of Equipment's offered	Attach with all details	
B2	Financial Resources Access: <ul style="list-style-type: none"> • Evidence of access to Financial Resources to meet the qualification requirements: cash in hand, lines of credit, etc. • List here as appropriate & Note that Proof in Documentary Evidence may be require to be provided upon request 	Attach	
B3	Equipment Guarantee (By bidder) and warranty period specified by manufacturer Note: Minimum of 24 Months is required Note: Schedule to be attached of all equipment on warranty	Attach: Note: Warranty shall be specific from date of completion of project.	
B4	Annual Maintenance Charges <ul style="list-style-type: none"> • After Expiry of DLP and Warranty Period, Indicate the proposed charges to be levied for annual maintenance of equipment & accessories • NOTE: The above are to be Labour only charges excluding parts which shall be fitted only with prior approval by the client. 	1 st Year (KShs.)	<u>Kshs.</u>
		2 nd Year (KShs.)	<u>Kshs.</u>
		3 rd Year (KShs.)	<u>Kshs.</u>
B5	Foreign Currency	State Foreign currency used in the pricing (if any) and rate of exchange to KShs.	1..... (Foreign Currency) = KShs.

BIDDERS REQUIREMENTS			
Item	Feature	Minimum Requirements	Bidder's Response / Comment (or X)
B6	Response Time	In event of emergency, the response time shall be how many hours (Preferred is 3 Hours) Hours
B7	Delivery Period of Equipment from Date of Award (Fill Where Applicable)		
		Days	
		Weeks	
		Months	
		Years	
B8	Delivery Period of Site Works from Date of Award (Fill Where Applicable)		
		Days	
		Weeks	
		Months	
		Years	

TABLE 02:

1.11	Work of a similar nature and volume performed as Prime Contractor over the last five years. The values should be indicated in the same currency used above. Also list details of work under way or committed, including expected completion date.			
PROJECT NAME & COUNTRY	CLIENT / CONTACT PERSON	LEAD CONSULTANT	TYPE OF WORK DONE & YEAR OF COMPLETION	CONTRACT VALUE (KShs.)

TABLE 03:

1.12	Qualification and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.		
POSITION	NAME	QUALIFICATIONS	YEARS OF EXPERIENCE IN PROPOSED POSITION
PROJECT MANAGER			
SITE FOREMAN			
OTHER(S)			

TABLE 04:

1.13 Proposed contracts and firms involved.			
SECTION OF THE WORKS	VALUE OF CONTRACT	CONTRACTOR (NAME & ADDRESS)	EXPIRIENCE IN SIMILAR WORK

TABLE 05:

1.14 Information on current litigation in which the Bidder is involved.		
OTHER PARTY(IES)	CAUSE OF DISPUTE	AMOUNT INVOLVED

TABLE 06:

1.15	Additional Requirements:	
	Bidders should provide any additional information required in these documents to fulfill the requirements thereof if applicable	

Signed (As in form of Tender) _____

Official Stamp & Date _____

2f. SPECIAL NOTES TO ALL TENDERERS – FIRE ALARM SYSTEM

- 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
- c) 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 _____

FORM OF AGREEMENT

FORM OF AGREEMENT

THIS AGREEMENT, made the _____ day of _____ 20____ between

KENYA MEDICAL SUPPLIES AUTHORITY of P.O.BOX 47715 – 00100 NAIROBI

(hereinafter called “the Employer”) of the one part AND _____

of [or whose registered office is situated at] _____

(hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

PROPOSED CONSTRUCTION OF KEMSA MODERN WAREHOUSE & OFFICE BLOCK, TENDER

NO. GF-KEMSA-CONST - 2/OIT 6/2017-2018 (hereinafter called “the Works”) located on **Land LR No.**

9042/176 Embakasi, Nairobi and the Employer has accepted the tender submitted by the Contractor for the

execution and completion of such Works and the remedying of any defects therein for the Contract Price of

Kenya Shillings _____ (Amount in figures),

Kenya Shillings _____ (Amount in figures),

NOW THIS AGREEMENT WITNESSETH as follows:

3. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
4. The following documents shall be deemed to form and shall be read and construed as part of this Agreement
i.e.
 - (viii) Letter of Acceptance
 - (ix) Form of Tender
 - (x) Conditions of Contract Part I
 - (xi) Conditions of Contract Part II and Appendix to Conditions of Contract
 - (xii) Specifications
 - (xiii) Drawings
 - (xiv) Priced Bills of Quantities
5. In consideration of the payments to be made by Kenya Medical Supplies Authority to the Contractor as hereinafter mentioned, the Contractor hereby covenants with Kenya Medical Supplies Authority to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
6. Kenya Medical Supplies Authority hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The common Seal of _____

Was hereunto affixed in the presence of_____

Signed Sealed, and Delivered by the said_____

Binding Signature of Kenya Medical Supplies Authority_____

Binding Signature of Contractor_____

In the presence of

(i) Name_____

Address_____

Signature_____

(ii) Name_____

Address_____

Signature_____

FORM OF TENDER

FORM OF TENDER

Tender No.:GF-KEMSA-CONST - 2/OIT 6/2017-2018

Date_____

To: Kenya Medical Supplies Authority

P. O. Box 47715 - 00100

NAIROBI.

Dear Sirs,

RE: PROPOSED CONSTRUCTION OF KEMSA MODERN WAREHOUSE & OFFICE BLOCK

In accordance with the Instructions to Tenderers, Specifications and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of Kshs. _____ [Amount in figure]

Kenya Shillings _____

_____ [Amount in words].

We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect's notice to commence, and to complete the whole of the Works comprised in the Contract within _____ (In Words) (_____) (in Figures) Weeks.

We agree to abide by this tender until _____ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any tender you may receive. Dated this _____ day of _____ 20_____

Signature _____ in the capacity of _____ duly authorized to sign tenders

for and on behalf of _____

Tenderer’s Name: _____

Tenderer’s Address: _____

Tenderer’s Signature: _____

Witness’s Name: _____

Witness’s Address: _____

Witness’s Signature: _____ Date _____

PART 03:

BILLS OF QUANTITIES

ELECTRICAL

INSTALLATIONS

ELECTRICAL INSTALLATIONS

ELECTRICAL INSTALLATIONS NOTES:

A GENERAL

- a1 The Electrical 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.

B LOW VOLTAGE SWITCHBOARDS & SWITCHGEAR

- b1 Switchboards shall be Locally Prefabricated with Local Support
- b2 Switchboards shall be BLOKSET TYPE as Schneider Electric or Equivalent to Approval
- NB:** Technical product Catalogues of the specified models should be attached as part of the Bid document.
- b3 Switchboards shall be Prefabricated and shall comply with standard IEC 60439-1 as well as with derived national standards NF EN 60 439-1, VDE 0660 Part 5, DIN 41-488, BS 5486, NBN C63 439 and CEI Italy 542 concerning the construction of type-tested assemblies (TTA). Under Whose License Certificate shall be issued.
- b4 Switchboards degree of protection shall be defined in compliance with standard IEC 60529 as follows Under Whose License Certificate shall be issued.
- IP 20 with a door or with front plates;
 - IP 31 with a door
 - IP 42 with a door and gasket kit;
 - IP 54 with a door and gasket kit.
- b5 Switchboards shall comply with standard IEC 60068.2.30 (Hot and damp climates) and with standard IEC 60068.2.11 (salt mist).
- b6 Switchboards shall be compatible with all system earthing arrangements defined in standard IEC 60984 (IT, TT or TN).
- b7 Switchboards shall have a permissible asymmetric short-circuit current of up to 100 kA for 1 second. The busbars shall be designed for mounting on insulated supports that are sufficient in number to accept the electrodynamic forces resulting from the flow of the peak asymmetric short-circuit current (220 kA peak). The different short-circuit current levels shall be:
- 30 kA: peak value of I_{sc} 65 kA
 - 50 kA: peak value of I_{sc} 105 kA
 - 85 kA: peak value of I_{sc} 187 kA
 - 100 kA: peak value of I_{sc} 220 kA (for double busbars arrangement)
- b8 Switchboards shall have an earthing circuit including a bar that can be removed for isolation purposes during the necessary insulation measurements (removal of the bar shall require a tool).
- b9 Switchboards shall be suitable for front and/or rear connections (to be precised).

- b10 Switchboards shall have Cable entry shall be via the bottom and/or the top (to be precised).
- b11 Switchboards shall be 2200mm high, in compliance with standard DIN 41-488.
- b12 Switchboards shall have natural ventilation or controlled ventilation shall make it possible for the switchgear and control gear components to operate within the recommended temperature ranges
- b13 Switchboards shall have small depths, thus optimising layout in electrical rooms
 - 400 mm up to 1600A
 - 600mm up to 6300A.
- b14 Switchboards shall make it possible to implement fixed or withdrawable distribution and motor-control sections, positioned side by side, which together form an assembly referred to as an electrical switchboard.
- b15 Switchboards selection of Switchgear and Controlgear components shall be made in compliance with standard IEC 60947. The selected switchgear and controlgear brands shall be equal to the ones mentioned in the type tests reports of the equipment.
- b16 Switchboards shall have breakers of same type/manufacturer. No mix of breakers of different types will be allowed in the system. The entire installation should be an end to end solution from one manufacturer.
- b17 Switchboards shall have digital meters on each which must have its minimum specification as PM820 power digital meter by Schneider or equivalent. This must be able to record real time readings, Power analysis (Past & Present), Energy readings & Demand readings, Maximum Power ever experienced by the Switchboards
- b18 Switchboards shall have Phase Indicator Lights on the outer side of the panel.
- b19 Switchboards shall conform to the following mandatory requirements:
 - Short Circuit Rating for the Switchboard (Certificate to be issued).
 - Short Circuit Rating for the Switchboard (Certificate to be issued).
 - KEBS Standard Certificate - Diamond Mark (Certificate to be issued).
 - ISO 9001 (Certificate to be issued).
 - ISO 14001 (Certificate to be issued).
 - Temperature Rise Test for Switchboard (Certificate to be issued).
- b20 Switchboards shall be BMS compatible with BACnet protocol
- b21 Switchboards Busbars shall be made of electrolytic copper, (type Cu ETP as defined by standard ISO 1337).
- b22 Switchboards shall ensure the safety of life and property as well as provide a high level of continuity of service. Operating safety shall be ensured by the use of compartments in compliance with standard IEC 60439-1 and according to form types 1, 2b, 3b and 4.

- b23 Switchgear Enclosures, front plates and doors of low-voltage switchboards shall be made of 2 mm thick, steel sheetmetal which shall have received an anti-corrosion coating (hot polymerised polyester/epoxy powder).

C EARTHING

- c1 All earthing treatment where required shall be by use of appropriate compounds such as Bentonite / Marconite to achieve stipulated impedance. Under no circumstance should charcoal or common salt be used.
- c2 Earthing values shall be: {<(Less than) }
- Electrical = < 4 Ohms
 - ICT = < 1 Ohm
 - Lightning Protection = < 7 Ohms
- c3 All earth Inspection chambers should be of HEAVY GAUGE as a minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

D DISTRIBUTION BOARDS

- d1 Distribution board & Consumer Units incomers should have a short circuit breaking capacity of 25kA to IEC standards.
- d2 Distribution board & Consumer Units incomers should have Rated Live busbars, Neutral busbar & Earth busbar to IEC standards.
- d3 All Distribution board & Consumer Units incomers should be incorporated with ELCB's
- d4 MCB's should have a short circuit breaking capacity of 10-15kA to IEC standards.

E CABLING

- e1 All HT Cabling to be as Elsewedy Cables or Equal & Approved
- e2 All LV Cables shall be as East African Cables or Equal & Approved
- e3 Colour code for 3-phase system cabling should be: Red for red phase, Yellow for yellow Phase, Blue for blue phase, Black for Neutral & Yellow/Green for Earth cables.
- e4 All Sub-Mains cables should be XLPE CU cables.

F LIGHTING

- f1 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 1 meter long 1.5mm sq 3 core white flex from the connector block to the Light fittings. Pricing for this must be included in the rates.
- f2 5 Amp cable connector blocks must be used to connect the flex cable to the concealed cables. Pricing for this must be included in the rates.
- f3 All LED Chips for Light Lamps shall be of cree model and should come with a heat sink
- f4 All Emergency Light fixtures shall have an Emergency kit for 3hr autonomy
- f5 All Emergency Light fixtures shall work normally under normal working conditions and only use the battery in event of Power source failure.
- f6 All Emergency Light fixtures shall have an indicator light incorporated as part of the fixture showing the status of the charge on the battery

G ACCESSORIES

- g1 Equipment Isolators Shall be located not more than 2 Meters from the actual equipment. This should be considered when quoting for the points.

**WAREHOUSE
ELECTRICAL
INSTALLATIONS**

WAREHOUSE INSTALLATIONS**A WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS****A1 Lighting Cabling 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 1 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.

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A1.01	LIGHTING POINTS (1-Way): 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.	826		
A1.02	EXTRACT FAN POINTS (1-Way): Ditto but for toilet extract fan	No.	40		
A1.03	LIGHTING POINTS (2-Way): 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.	236		
A1.04	LIGHTING POINTS (Intermediate): Intermediate 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.	454		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A1.05	LIGHTING POINTS (Emergency): Emergency 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.	70		
A1.06	SENSOR LIGHTING POINTS: Occupational Sensor 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.	221		
A1.07	WAREHOUSE LIGHTS SUPPLY: High Level Lights Supply Cabling wired in 6mm 3-Core flexible cable drawn in Lighting Trunking from DB to each Circuit Isolator. (WHITE CABLES)	LM	3,604		
A1.08	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

A2 Switches & Accessories

All Switches & Associated Accessories shall be as Legrand Belanko Range (White)

A2.01	10A 1 Gang 1 Way Switch	No.	90		
A2.02	10A 1 Gang 2 Way Switch	No.	45		
A2.03	10A 2 gang 1way Switch	No.	40		
A2.04	10A 2 gang 2 way Switch	No.	90		
A2.05	10A 3 gang 1 way Switch	No.	17		
A2.06	10A 3 gang 2 way Switch	No.	15		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A2.07	10A Intermediate Switch	No.	6		
A2.08	10A 1 Gang Dimmer Switch	No.	10		
A2.09	10A 2 Gang Dimmer Switch	No.	5		
A2.10	10A 1 Gang 1 Way ARCHITRAVE Switch	No.	6		
A2.11	10A 1 Gang 2 Way ARCHITRAVE Switch	No.	20		
A2.12	10A 2 gang 1way ARCHITRAVE Switch	No.	4		
A2.13	10A 2 gang 2 way ARCHITRAVE Switch	No.	4		
A2.14	10A 1 Gang 1 Way WATERPROOF Switch	No.	4		
A2.15	10A 1 Gang 2 Way WATERPROOF Switch	No.	2		
A2.16	10A 2 gang 1way WATERPROOF Switch	No.	6		
A2.17	10A 2 gang 2 way WATERPROOF Switch	No.	6		
A2.18	10A Intermediate WATERPROOF Switch	No.	6		
A2.19	TYPE OS1: Ceiling mount PIR Sensor with a 360 degree view angle and a 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 Should be as HONEYWELL EX-OR MULTI-FUNCTION PIR to Engineers approval.	No.	90		
A2.20	TYPE OS2 (HIGH BAY PIR SENSOR): Ceiling Surface mount High Bay PIR detector with a 360 degree view angle and a hard shell spherical lens. The sensor/detector should have a mounted height range of 20m with a 1:1 height to diameter ratio. The Sensor should be Programmable with infrared programmer from ground level. This Should be as HONEYWELL EX-OR HIGH BAY to Engineers approval.	No.	125		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A2.21	TYPE OS3 (LONG RANGE MICROWAVE SENSOR): Ceiling Surface mount Long Range Microwave Sensor with a 360 degree view angle and a hard shell spherical lens. The sensor/detector should have a mounted range of 60m and mounted at a height of 20m. The Sensor should be Programmable with infrared programmer from ground level. This Should be as HONEYWELL EX-OR LONG RANGE MICROWAVE SENSOR to Engineers approval.	No.	6		
A2.22	WAREHOUSE LIGHTING ISOLATORS: 32A DP Isolator for lighting Circuits in Warehouse. This should be Surface Mounted and Enclosed. This shall be as Schneider Electric.	No.	40		
A2.23	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

A3 Light Fittings & Accessories

Fittings Must be quoted for as Specified below. All shall be subject to Engineers approval.

A3.01	TYPE HB: HIGH BAY REFLECTOR LUMINAIRE for E-40 Lampholder with tool-free installation, pre-installed 1.5m LSOH mains cable (HF 3 core). IP23 aluminium housing in silver, anodised finish, High-Purity sandblasted aluminium reflector, stainless steel suspension brackets, tested at an ambient temperature of 35°. This shall come complete with an E-40 LED lamp as Osram / Phillips and all other accessories required. This shall have a Diameter of 320mm and a Height of 478mm. This should be complete with 2m Length Tube Suspension. The Lights shall have a rating of 100W As a Minimum. This is as THORN CONCAVIA S	No.	620		
-------	---	-----	-----	--	--

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.02	TYPE HBe: Ditto but emergengy version with an emergency backup gear for 3hr autonomy	No.	30		
A3.03	TYPE 4LV: HIGH BAY (SINGLE) Dedicated IP65 industrial luminaire for linear fluorescent lamps, for suspended mounting with brackets which allow tilting up to 50 degrees without rotational torque. This shall have a Body of matt grey powder painted galvanised steel (close to RAL 7004) with a high quality aluminium reflector which is Miro treated and Halogen free internal wiring. This shall come complete with an 1No. x 17W LED Tube as Osram / Phillips and all other accessories required. This shall have a length of 1234mm and a Width of 248mm. This is as THORN TITUS	No.	57		
A3.04	TYPE 4LVe: Ditto but emergengy version with an emergency backup gear for 3hr autonomy	No.	14		
A3.05	TYPE 4LTV: HIGH BAY (TWIN) Dedicated IP65 industrial luminaire for linear fluorescent lamps, for suspended mounting with brackets which allow tilting up to 50 degrees without rotational torque. This shall have a Body of matt grey powder painted galvanised steel (close to RAL 7004) with a high quality aluminium reflector which is Micro treated and Halogen free internal wiring. This shall come complete with an 2No. x 17W LED Tube as Osram / Phillips and all other accessories required. This shall have a length of 1234mm and a Width of 248mm. This should be complete with 2m Length Tube Suspension. This is as THORN TITUS	No.	117		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.06	TYPE 4LTVe: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	36		
A3.07	TYPE 4X: High performance, IP65, dust and moisture proof impact resistant luminaire with GRP canopy, polycarbonate diffuser and stainless steel toggles, with industrial ballast for reliable operation down to 30°C, thermal over tubes fitted to standard tubes for low maintenance. This should come with linear LED Tubes as Phillips / Osram. This is as Thorn ColdForce II.	No.	39		
A3.08	TYPE 4Xe: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	13		
A3.09	TYPE 4P: 1200mm long HPF water proof flourescent fittings for TWIN tubes This should be IP65 rated with Sheet steel gear tray and polycarbonate fixing clips and c/w all other accessories and 1 x 17W LED tubes. This shall be as THORN AQUAFORCE II	No.	17		
A3.10	TYPE 4Pe: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	2		
A3.11	TYPE 2AS: SURFACE MOUNTED 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 Leme lighting or THORN SPECLINE LED	No.	124		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.12	TYPE 2Ase: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	24		
A3.13	TYPE 2A: Recessed 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 Leme lighting or THORN SPECLINE LED	No.	38		
A3.14	TYPE 2Ae: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	9		
A3.15	TYPE A: Ceiling Mount Bold & Versatile Circular Luminaire of 285mm Diameter and 73mm Depth for 1200lm LED (12W) with polycarbonate body, 'flat' opal and prismatic diffuser c/w electronic gear, IP65 Rated as THORN DANUBE	No.	8		
A3.16	TYPE Ae: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	4		
A3.17	TYPE B: Cast Aluminium Bulkhead 254mm length & 114mm wide c/w 1x14W energy saving lamps. IP65 Rated. This is as THORN OLV/OLG	No.	8		
A3.18	TYPE GS1: Vertical SURFACE MOUNTED Glarefree Downlights for 18W, 1000lm 3500K LED with constant colour Temperature (i.e. Ra>92) over the product life cycle. This should be 165mm Diameter & 120mm Height, IP44 Rated, Body & Bezel made of die cast aluminium with matt finish and a satin silver decorative inner ring c/w all accessories. This will be as Leme lighting or THORN BASE LED	No.	30		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.19	TYPE GS1e: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	60		
A3.20	TYPE G1: Vertical Recessed Glarefree Downlights for 18W, 1000 lm 3500K LED with constant colour Temperature (i.e. Ra>92) over the product life cycle. This should be 165mm Diameter, IP44 Rated, Body & Bezel made of die cast aluminium with matt finish and a satin silver decorative inner ring c/w all accessories. This will be as Leme lighting or THORN BASE LED	No.	152		
A3.21	TYPE G1e: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	60		
A3.22	TYPE G2: Round Recessed Downlights for 6 x 1.2W LED Light Source. This should be fixed. This should contain High quality OSRAM LEDs of 3000K Colour, sool light with no IR/UV Radiation. This should be 120mm Diameter, IP65 Rated, Housing made of aluminium, painted titan-grey c/w all accessories. This will be as Leme lighting or THORN D-CO LED Downlight	No.	104		
A3.23	TYPE M: Slim Surface Mounted Mirror Light with Body amd End Caps made of extruded aluminium c/w opal polycarbonate diffuser with glare free distribution for 14W T5 fluorescent lamp with dimmensions as 616mm by 90mm width by 60mm height as THORN CIMI	No.	30		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.24	TYPE UD1: Wall Mount Uplighter & Downlighter. Should have 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp holder and complying to category T2 of BS EN 61184 c/w Lamp and all connection accessories. This should be, Grey finish 6.5W LED lamp with constant colour Temperature (i.e. Ra>92) over the product life cycle, IP54 Rated, 3000K with dimesnions of W=80mm, H=142mm & D=65. This is as FORLIGHT LOYD	No.	5		
A3.25	TYPE UD2: Contemporary Wall mounted Uplight & Downlight Floodlight for 2 x 42W TC-TEL. Body and frame shall be made of Die cast Aluminium with RAL9007 colour. This should be 200mm in Diameter and 450mm in Height, IP65 Rated, with gear integrated & frosted glass c/w all bulbs and accessories. This is as THORN CESAR 3	No.	25		
A3.26	TYPE P1: Hanging pendant with aluminium lampshade of 180mm Diameter and 1100mm height c/w 1 x 14W Energy saving lamp. This is as EGLO MERCUR 88293	No.	10		
A3.27	TYPE ST: LED 3-LED cuttable flexible striplight. This should come complete with all accessories & gear. This should be as MASSIVE NEO-NEON FLEX	LM	150		
A3.28	TYPE ST Channel: Aluminium Chanel for Striplight Above	LM	150		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.29	TYPE STL - Recessed Step Light 02. Should have Lamp holder with metallic ring clips, 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp holder and complying to category T2 of BS EN 61184 c/w Lamp and all connection accessories. This should have Chrome Finish, 2.2W LED lamp with constant colour Temperature (i.e. Ra>92) over the product life cycle, IP65 Rated, 3000K with dimensions of Dia=95mm & D=72mm. This is as THE ONE GEA DIRECT 05-9757-CA-CL	No.	55		
A3.30	EXIT A: 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 life cycle as THORN VOYAGER LED.	No.	24		
A3.31	EXIT B: Self contained Wall mounted Maintained Single sided 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 Polycarbonate Body, Polycarbonate Diffusser Blade & for 8W LED with constant colour Temperature (i.e. Ra>92) over the product life cycle as THORN VOYAGER SIGMA	No.	10		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A3.32	EXIT C: Self contained Suspended Double Sided Maintained LED Exit Sign. It should have a minimum viewing distance of 30 meters & 3-Hour maintained operation inbuilt battery system. This should be Silver finish with Extruded Aluminium Body, Engraved flame retardant acrylic Blade & for 11W TC-SEL Compact Fluorescent Lamps. This should be complete with 2m Length Tube Suspension. This is as THORN VOYAGER ELITE SX	No.	15		
A3.33	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

A4 Cable Ladders, Cable Trays, Trunking & Conduits Installations

A4.01	CABLE LADDER (POWER): 300 x 100mm POWDER COATED (WHITE) steel factory fabricated Cable Ladder complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	125		
A4.02	CABLE LADDER (POWER): 600 x 100mm POWDER COATED (WHITE) steel factory fabricated Cable Ladder complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	652		
A4.03	RISERS CABLE TRAY (POWER DUCTS): 300 x 50mm POWDER COATED (WHITE) 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	70		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A4.04	RISERS CABLE TRAY (ICT DUCTS): 300 x 50mm POWDER COATED (ORANGE) 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	70		
A4.05	HORIZONTAL CABLE TRAY (POWER): 400 x 50mm POWDER COATED (WHITE) 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	540		
A4.06	HORIZONTAL CABLE TRAY (ICT): 400 x 50mm POWDER COATED (ORANGE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	540		
A4.07	CABLE TRAY (POWER) : 75 x 50mm POWDER COATED (WHITE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	80		
A4.08	CABLE TRAY (POWER) : 150 x 50mm POWDER COATED (WHITE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	50		
A4.09	CABLE TRAY (POWER) : 200 x 50mm POWDER COATED (WHITE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	51		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A4.10	TRUNKING (LOW VOLTAGE): 50 x 50mm, 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. This shall be suspended by Z-Brackets with Rods at a distance of at least 2m.	LM	950		
A4.11	TRUNKING: 250 x 50mm, 3 compartment Screw on 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	1,347		
A4.12	TRUNKING FACEPLATES (SINGLE): Trunking faceplates for Single outlets for raw power	No.	250		
A4.13	TRUNKING FACEPLATES (TWIN): Trunking faceplates for Twin outlets for raw power	No.	310		
A4.14	FLOOR PVC CONDUITS: 50mm Ø HG PVC conduits for linking Services from the Ducts and from the Trunking	LM	340		
A4.15	FLOOR PVC CONDUITS: 38mm Ø HG PVC conduits for linking from the Duct to the Equipment	LM	374		
A4.16	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.	40		
A4.17	ADAPTER JUNCTION BOXES: 150 x 150 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	50		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A4.18	ADAPTER JUNCTION BOXES: 200 x 250 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	35		
A4.19	ADAPTER JUNCTION BOXES: 300 x 200 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	5		
A4.20	CABLE TIES: Allow for cable ties at one meter interval along the cable trays and cable ladders above.	Item	1		
A4.21	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

A5 Power Supply

All equipment Isolators will be located not more than 2 meters from the actual equipment. This should be considered when quoting for the points.

All Sockets to be as Legrand Belanko (Raw Power - White, Clean Power- Red inner trim)

A5.01	RAW POWER PLUG POINT: DP control switch outlet points for raw power wired in 3core 4.0mm sq flex cu cables wired from DB to each point. (BLACK CABLES)	No.	52		
A5.02	DP SWITCH RAW: 20A fused, unswitched Screwless DP control switch with neon indicator for power	No.	80		
A5.03	CLEAN POWER PLUG POINT: DP control switch outlet points for raw power wired in 3core 4.0mm sq flex cu cables wired from DB to each point. (WHITE CABLES)	No.	80		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A5.04	DP SWITCH CLEAN: 20A fused, unswitched Screwless DP control switch with neon indicator for power	No.	80		
A5.05	SOCKETS POINTS: Ring mains socket outlets in 2.5mm ² PVC - Insulated twin + earth CU cables drawn in concealed 20mm Ø HG PVC conduits concealed in building fabrics or in trunking.	No.	165		
A5.06	SOCKET (13A): 13A twin shuttered switched socket plate c/w neon indicator	No.	165		
A5.07	SOCKET (15A): 15A Single shuttered switched socket plate c/w neon indicator	No.	4		
A5.08	SOCKET (WATERPROOF-13A): 13A twin shuttered WATERPROOF switched socket plate c/w neon indicator This Shall be as MK K56482BLK	No.	30		
A5.09	SOCKET (FLOOR-13A): 13A twin shuttered HINGED FLOOR SOCKET WITH STAINLESS COVER switched socket plate c/w neon indicator	No.	20		
A5.10	CLEAN POWER SOCKETS POINTS: Clean power outlets wired in 2.5mm ² PVC - Insulated twin + earth CU cables drawn in concealed Trunking	No.	165		
A5.11	SOCKET (CLEAN-13A): 13A twin shuttered switched socket plate c/w neon indicator as Legrand / MK (Red Sockets)	No.	165		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A5.12	HAND DRIERS: Hand drier outlet point wired in 2.5mm ² PVC-insulated twin + earth CU cables in 20mm HG PVC conduit	No.	11		
A5.13	DP SWITCH (HAND DRIER): 20A fused Switched DP control switch with neon indicator for power c/w 2.5mm ² 3 core white flex cable to hand drier	No.	11		
A5.14	UNDERSINK WATER HEATER POWER POINTS: Single phase Systems Panels outlet points wired in 2.5mm ² twin + earth PVC insulated CU cables.	No.	2		
A5.15	DP SWITCH (UWH): 20A fused, unswitched DP control switch with neon indicator	No.	2		
A5.16	URINAL & WHB POWER POINTS: Urinal sensors outlet point wired in 1.5mm sq PVC-insulated twin + earth CU cables in 20mm HG PVC conduit c/w conduit outlet to urinal sensor position from floor distribution board in duct.	No.	30		
A5.17	PANELS POWER POINTS: Single phase Systems Panels outlet points wired in 2.5mm ² twin + earth PVC insulated CU cables.	No.	15		
A5.18	DP SWITCH (PANELS): 20A fused, unswitched DP control switch with neon indicator	No.	15		
A5.19	FIRE ALARM CONDUITWORK: Conduit Outlets for fire alarm interlinked in concealed 25mm Ø HG PVC conduit c/w draw wire.	No.	240		
A5.20	CCTV CONDUITWORK: Conduit Outlets for CCTV in concealed 20mm Ø HG PVC conduit c/w draw wire.	No.	117		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A5.21	ACCESS CONTROL CONDUITWORK: Conduit Outlets for ACS in concealed 20mm Ø HG PVC conduit c/w draw wire.	No.	189		
A5.22	WAREHOUSE ROLLER SHUTTER DOORS ISOLATOR: 63A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	15		
A5.23	CABLING - WAREHOUSE ROLLER SHUTTER DOORS: Three phase power outlet points wired in 10mm sq 4 Core PVC SWA PVC CU cables from Panel to Equipment Isolator in close proximity to the Unit.	LM	450		
A5.24	INDUSTRIAL PLUG (1-PH) - 32A 3-Pin Industrial plug c/w Isolator control switch for System above with enclosure as Hager (IP65 rated)	No.	20		
A5.25	CABLING (INDUSTRIAL PLUG): Single phase outlet points wired in 3 Core 6mm sq SC PVC FLEX CU cables drawn in concealed 25mm Ø HG PVC conduits concealed in building fabrics.	No.	20		
A5.26	INDUSTRIAL PLUG (3-PH) - 32A 5-Pin Industrial plug c/w Isolator control switch for System above with enclosure as Hager (IP65 rated)	No.	10		
A5.27	CABLING (INDUSTRIAL PLUG): Three phase outlet points wired in 5 Core 6mm sq SC PVC FLEX CU cables drawn in concealed 25mm Ø HG PVC conduits concealed in building fabrics.	No.	10		
A5.28	Labelling of final sub-circuits. Labelling of all Final sub-circuits should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		
A5.29	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

A6 Mechanical Equipment Power Supply

All equipment Isolators will be located not more than 2 meters from the actual equipment. This should be considered when quoting for the points.

PUMPS					
A6.01	ISOLATOR - SPRINKLER PUMPS: 200A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	1		
A6.02	CABLING - SPRINKLER PUMPS: Three phase power outlet points wired in 70mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	40		
A6.03	ISOLATOR - SPRINKLER JOCKEY: 20A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	1		
A6.04	CABLING - SPRINKLER JOCKEY: Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	20		
A6.05	ISOLATOR - PUMPS (WATER BOOSTER): 20A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	3		
A6.06	CABLING - PUMPS (WATER BOOSTER): Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	60		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A6.07	ISOLATOR - HOSE REEL PUMP: 10A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	3		
A6.08	CABLING - HOSE REEL PUMP: Three phase power outlet points wired in 4mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	60		
A6.09	ISOLATOR - BOREHOLE PUMP : 20A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	1		
A6.10	CABLING - BOREHOLE PUMP: Three phase power outlet points wired in 10mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	200		
A6.11	ISOLATOR - SUMP PUMP: 10A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	1		
A6.12	CABLING - SUMP PUMP: Three phase power outlet points wired in 4mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	150		
A6.13	ISOLATOR - WATER TREATMENT: 20A TPN Isolator control switch for unit with enclosure as Hager (IP65 rated)	No.	1		
A6.14	CABLING - WATER TREATMENT: Three phase power outlet points wired in 10mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit.	LM	200		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
	MECHANICAL VENTILLATION				
A6.15	ISOLATOR - STAIRCASE PRESSURIZATION: 20A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	0		
A6.16	FANS CABLING - STAIRCASE PRESSURIZATION FANS : Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	0		
A6.17	ISOLATOR - COLD ROOMS & FREEZER ROOMS INDOOR UNITS: 10A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	30		
A6.18	FANS CABLING - STAIRCASE PRESSURIZATION FANS : Three phase power outlet points wired in 4mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	1,500		
A6.19	ISOLATOR - COLD ROOMS & OUTDOOR UNITS: 20A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	15		
A6.20	FANS CABLING - STAIRCASE PRESSURIZATION FANS : Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	750		
A6.21	ISOLATOR - FREEZER ROOMS & OUTDOOR UNITS: 30A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	15		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A6.22	FANS CABLING - STAIRCASE PRESSURIZATION FANS : Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	750		
A6.23	LABELLING (External): Labelling of all Isolators above with permanent Engraved labels of Visible Font. Engraved plate shall be Grey in Colour with white legible markings. All to Engineers approval	Item	1		
A6.24	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

A7 Power distribution and Cabling

All Distribution board & Consumer Units incomers should have a short circuit breaking capacity of 25kA to IEC standards.

All MCB's should have a short circuit breaking capacity of 10-15kA to IEC standards.

All Distribution board & Consumer Units incomers should have Rated Live busbars, Neutral busbar & Earth busbar to IEC standards.

All cables to distribution boards should be XLPE CU cables and this should be catered for in the rates.

All Distribution Boards shall be as Merlin Gerlin

All MCB's shall have Isobar Mechanism

A7.01	DISTRIBUTION BOARDS (RAW POWER) DB'R_x-x': 16 way 125A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	6		
A7.02	10A SP MCB with Isobar Mechanism	No.	78		
A7.03	20A SP MCB with Isobar Mechanism	No.	94		
A7.04	32A SP MCB with Isobar Mechanism	No.	98		
A7.05	63A SP MCB with Isobar Mechanism	No.	6		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A7.06	SP Blanking plates	No.	2		
A7.07	TP Blanking plates	No.	6		
A7.08	CABLING (WAREHOUSE DISTRIBUTION LV PANEL to DB Above): 16mm ² 4-Core PVC SWA PVC CU Cable	LM	412		
A7.09	Cable glands for above cables	No.	12		
A7.10	Cable lugs for for above cables	No.	48		
A7.11	DISTRIBUTION BOARDS (AIR CONDITIONING) DB'ACx-x': 8 way 125A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	4		
A7.12	20A SP MCB with Isobar Mechanism	No.	60		
A7.13	SP Blanking plates	No.	0		
A7.14	TP Blanking plates	No.	12		
A7.15	CABLING (WAREHOUSE DISTRIBUTION LV PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	272		
A7.16	Cable glands for above cables	No.	8		
A7.17	Cable lugs for for above cables	No.	32		
A7.18	DISTRIBUTION BOARDS (WAREHOUSE EXTERNAL LIGHTING) DB'EL-WH': 4 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	1		
A7.19	10A SP MCB with Isobar Mechanism	No.	12		
A7.20	SP Blanking plates	No.	0		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A7.21	TP Blanking plates	No.	0		
A7.22	CABLING (WAREHOUSE DISTRIBUTION LV PANEL to DB Above via Timer/Photocell Circuit): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	15		
A7.23	Cable glands for above cables	No.	2		
A7.24	Cable lugs for for above cables	No.	8		
A7.25	EXTERNAL LIGHTING TIMER: Façade Lighting Electronic Timer as Merlin Gerlin (40A Rated)	No.	1		
A7.26	DISTRIBUTION BOARDS (CLEAN POWER) DB'CL-xx': 8 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	4		
A7.27	20A SP MCB with Isobar Mechanism	No.	48		
A7.28	SP Blanking plates	No.	0		
A7.29	TP Blanking plates	No.	16		
A7.30	CABLING (UPS DISTRIBUTION PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	285		
A7.31	Cable glands for above cables	No.	8		
A7.32	Cable lugs for for above cables	No.	32		
A7.33	DISTRIBUTION BOARDS (SERVER ROOM CLEAN POWER) DB'CL-SR': 6 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	1		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A7.34	20A SP MCB with Isobar Mechanism	No.	12		
A7.35	SP Blanking plates	No.	0		
A7.36	TP Blanking plates	No.	4		
A7.37	CABLING (UPS DISTRIBUTION PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	285		
A7.38	Cable glands for above cables	No.	2		
A7.39	Cable lugs for for above cables	No.	8		
A7.40	ISOLATOR (UPS SERVER ROOM): 20A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	2		
A7.41	CONSUMER UNIT (ICT ROOMS CLEAN POWER) CU'CL-SRFx': 8 way 100A rated SPN Surface Mounted consumer unit for as SPS c/w transparent glass cover	No.	2		
A7.42	20A SP MCB with Isobar Mechanism	No.	10		
A7.43	SP Blanking plates	No.	6		
A7.44	CABLING (DB'CL-SR' to CU Above): 10mm ² 2-Core PVC SWA PVC CU Cable	LM	180		
A7.45	Cable glands for above cables	No.	4		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
A7.46	Cable lugs for for above cables	No.	8		
A7.47	UPS DISTRIBUTION POWER PANEL (DB'UPS') : TPN Custom Made Surface WALL MOUNT Distribution Board. This should be as per the schematic drawing & have the following specifications: <ul style="list-style-type: none"> • 8 Way Outgoers Panel • Main Incomer - 125A TPN MCCB • Should contain Appropriate Neutral & Earth Bars • Should contain a connector block for termination of outgoing cables. 	No.	1		
A7.48	40A TP MCB with Isobar Mechanism	No.	4		
A7.49	SP Blanking plates	No.	0		
A7.50	TP Blanking plates	No.	4		
A7.44	CABLING (WAREHOUSE DISTRIBUTION LV PANEL to PANEL Above) : 25mm ² 4-Core PVC SWA PVC CU Cable	LM	40		
A7.45	Cable glands for above cables	No.	8		
A7.46	Cable lugs for for above cables	No.	16		
A7.51	Labelling of DB's and CU's and final sub-circuits. Labelling of all DB's, CU's and Final sub-circuits should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		
A7.52	Total c/f to WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION PAGE

ITEM	DESCRIPTION	COST (Kshs.)
A1	Lighting Cabling Installations	
A2	Switches & Accessories	
A3	Light Fittings & Accessories	
A4	Cable Ladders, Cable Trays, Trunking & Conduits Installations	
A5	Power Supply	
A6	Mechanical Equipment Power Supply	
A7	Power distribution and Cabling	
A8	SUB-TOTAL c/f to WAREHOUSE ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

B WAREHOUSE - LV SWITCHGEAR**B1 WAREHOUSE DISTRIBUTION LV PANEL**

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
B1.01	<p>WAREHOUSE DISTRIBUTION LV PANEL as per schematic drawing</p> <p>FREE STANDING PANEL, Type Tested assembly (TTA),, modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 3b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Supply available & Supply on Load</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Supply Available & Supply on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	No.	1		
B1.02	Main Incomer				
a	1000Amp 3P MCCB (DRAWOUT & ADJUSTABLE) with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
B1.03	Busbars				
a	1250A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		
B1.04	OUTGOERS				
a	250Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
b	100Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	2		
c	80Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	2		
d	63Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	5		
e	40Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	8		
f	Spareways for upto 100Amp 3P MCCB	No.	3		
B1.05	Sub -Total for c/f to WAREHOUSE - LV SWITCHGEAR PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

B2 COLD ROOMS LV PANEL

<p>B2.01</p>	<p>COLD ROOMS LV PANEL as per schematic drawing</p> <p>FREE STANDING PANEL, Type Tested assembly (TTA),, modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 3b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Supply available & Supply on Load</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Supply Available & Supply on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	<p>No.</p>	<p>1</p>		
---------------------	--	------------	----------	--	--

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
B2.02	Main Incomer				
a	630Amp 3P MCCB (FIXED & ADJUSTABLE) with adjustable overcurrent settings, having a short circuit breaking capacity of 80KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		

B2.03 CHANGEOVER (Mains to Generator) - COLD ROOMS

	The MFP should be such that in event of mains power outage, it picks up available supply from the generator selector panel. Supply & Install a 630 Amps 4P motorised automatic mains & generator changeover. This should comprise of:-	No.	1		
a	630Amps 3P mechanically interlocked motorised MCCB's and associated PLC, with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
b	Supply & install control unit for auto-changeover Type UA-1 or equivalent.	Item.	1		
c	Supply & install under/over voltage sensing relay.	Item.	1		
d	Supply and Install set of indication to show Mains supply Available / In use or generator supply Available / In use.	Item.	1		
e	Supply and Install set of voltage free normally open/closed contacts for generator start/stop signal.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
B2.04	Busbars				
a	800A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		
B2.05	OUTGOERS				
a	30Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	30		
b	20Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	15		
c	10Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	15		
d	Spareways for upto 63Amp 3P MCCB	No.	5		
B2.06	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

B3 WAREHOUSE LIGHTING CONTROL LV PANEL

B3.01	<p>WAREHOUSE LIGHTING CONTROL LV PANEL as per schematic drawing</p> <p>WALL MOUNT, Type Tested assembly (TTA), modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 1b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Supply available & Supply on Load</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Supply Available & Supply on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	No.	1		
B3.02	Operation				
	<p>The sub-board should comprise Protection Breakers & Contactors to control High Bay Lighting Circuits</p> <p>The sub-board should have an Auto and manual control Terminal. Manual should act as an override to the Occupation Sensor Controlled Automatic system. Appropriate control relays should be incorporated in the system.</p> <p>The ON-OFF Buttons shall be located externally on the panel and they shall be Push Buttons.</p>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
B3.03	Main Incomer				
a	250Amp 3P MCCB (FIXED) with adjustable overcurrent settings, having a short circuit breaking capacity of 80KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		
B3.04	Busbars				
a	300A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		
B3.05	OUTGOERS				
a	MCB's: 32Amp 1P MCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	15		
b	CONTACTORS: 32Amp 3P Contactors as TeSys D Series contactor - 3P(3 NO) - AC-3 - <= 440 V 12 A - 230 V AC coil	No.	5		
c	Spareways for Above system	No.	2		
B3.06	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

B4 OPERATIONS AREA LIGHTING CONTROL LV PANEL

B4.01	<p>OPERATIONS AREA LIGHTING CONTROL LV PANEL as per schematic drawing</p> <p>WALL MOUNT, Type Tested assembly (TTA), modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 1b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Supply available & Supply on Load</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Supply Available & Supply on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	No.	1		
B4.02	Operation				
	<p>The sub-board should comprise Protection Breakers & Contactors to control High Bay Lighting Circuits</p> <p>The sub-board should have an Auto and manual control Terminal. Manual should act as an override to the Occupation Sensor Controlled Automatic system. Appropriate control relays should be incorporated in the system.</p> <p>The ON-OFF Buttons shall be located externally on the panel and they shall be Push Buttons.</p>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
B4.03	Main Incomer				
a	40Amp 3P MCCB (FIXED) with adjustable overcurrent settings, having a short circuit breaking capacity of 80KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		
B4.04	Busbars				
a	63A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		
B4.05	OUTGOERS				
a	MCB's: 32Amp 1P MCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	12		
b	CONTACTORS: 32Amp 3P Contactors as TeSys D Series contactor - 3P(3 NO) - AC-3 - <= 440 V 12 A - 230 V AC coil	No.	4		
c	Spareways for Above system	No.	2		
B4.06	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

LV SWITCHGEAR PRICE COLLECTION PAGE

B1	WAREHOUSE DISTRIBUTION LV PANEL	
B2	COLD ROOMS LV PANEL	
B3	WAREHOUSE LIGHTING CONTROL LV PANEL	
B3	OPERATIONS AREA LIGHTING CONTROL LV PANEL	
B4	SUB-TOTAL c/f to WAREHOUSE ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

C WAREHOUSE - SUBMAINS CABLING & SYSTEMS EARTHING

All cables to distribution boards should be XLPE CU cables and this should be catered for in the rates.

All cables with Multiple runs have their measurements catered for in the quantities. Rate should be for single Run only

Colour code for 3-phase system cabling should be: Red for red phase, Yellow for yellow Phase, Blue for blue phase, Black for Neutral & Yellow/Green for Earth cables.

All HT Cabling to be as Elsewedy Cables

All LV Cabling to be as East African Cables

All cables Labelling tags shall be as Legrand and should be done on both ends

C1 WAREHOUSE LV CABLING

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
C1.01	MAINS & GENERATOR SUPPLY CHANGEOVER LV PANEL to WAREHOUSE LV PANEL: 300mm sq PVC SC XPLE CU Cables. (Wired in 2 runs / phase + 2 runs of Neutral)	LM	1080		
C1.02	Cable glands for above cables	No.	16		
C1.03	Cable lugs for for above cables	No.	16		
C1.04	MAINS & GENERATOR SUPPLY CHANGEOVER LV PANEL to COLD ROOMS LV: 400mm sq PVC SC XPLE CU Cables. (Wired in 1 runs / phase + 1 runs of Neutral)	LM	200		
C1.05	Cable glands for above cables	No.	8		
C1.06	Cable lugs for for above cables	No.	8		
C1.07	LABELLING: Labelling of Cables and final sub-circuits. Labelling should be done in red Traffolytte labels properly anchored on the specific devices. As Legrand	Item	1		
C1.10	SUB-TOTAL c/f to WAREHOUSE - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

C2 WAREHOUSE SYSTEMS EARTHING

Pricing to include earth treatment where required using appropriate compounds such as Bentonite and marconite to achieve stipulated impedance. Under no circumstance should charcoal or common salt be used. **NOTE: Manufacturers Proof will be required**

All cables with Multiple runs have their measurements catered for in the quantities. Rate should be for single Run only

All earthing Cables Colour code shall be Yellow/Green or Green

All earth Inspection chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

All cables Labelling tags shall be as Legrand

WAREHOUSE LV ROOM EARTHING:

C2.01	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
C2.02	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
C2.03	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	2		
C2.04	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 150mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	120		
C2.05	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 150mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	70		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
<u>SERVER ROOM & ICT SYSTEMS EARTHING:</u>					
C2.06	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
C2.07	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
C2.08	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	10		
C2.09	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 70mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	120		
C2.10	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 70mm sq PVC SC XPLE CU Cables	LM	300		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
<u>WAREHOUSE POWER & ICT DUCTS EARTHING:</u>					
C2.11	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	15		
C2.12	LV ROOM EARTH BAR - DUCT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 95mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	300		
<u>ACCESSORIES</u>					
C2.13	Supply and install 11mm cable markers for on both ends of the cables above.	Item.	1		
C2.14	Allow for cable ties for fastening all the above cables at every 300mm interval	Item.	1		
C2.15	SUB-TOTAL c/f to WAREHOUSE - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

WAREHOUSE - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE

C1	WAREHOUSE LV CABLING	
C2	WAREHOUSE SYSTEMS EARTHING	
C3	SUB-TOTAL c/f to WAREHOUSE ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

D WAREHOUSE - LIGHTNING PROTECTION & ACCESSORIES

Lightning Protection System shall be as INDELEC LIGHTNING PROTECTION

*Pricing to include earth treatment where required using appropriate compounds such as Bentonite and marconite to achieve stipulated impedance. Under no circumstance should charcoal or common salt be used. **NOTE: Manufacturers Proof will be required***

All earth Inspection pit / chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

All earthing Cables Colour code shall be Yellow/Green or Green

All Joints on the earth cables shall be cad Welded To ensure a firm joint.

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
D1.01	LIGHTNING ROD: Modular Lightning rod with Early Streamer Emission lightning conductor & Incorporates Optimax technology. This should include self Testing Kit. This is as PREVECTRON® 3 S 60TC	No.	6		
D1.02	STEEL MAST (LIGHTNING ROD): Appropriate Steel mast of 35mm Diameter and 2 Meter height Including Prevelectron Adaptor and all other mounting accessories	No.	6		
D1.03	INFORMATION SIGN: Appropriate Lightning protection Information sign in English	No.	1		
D1.04	TESTING REMOTE: PREVECTRON® 3 Self Testing Digital Remote	No.	1		
D1.05	DOWN CONDUCTORS: 25mm x 3mm tinned annealed copper tape as Furse Cat. Ni. TC 230 or Braided Bare Electrolytic Copper Cable of 95mm Diameter for down conductors	LM	120		
D1.06	CONDUIT LINK: 50mm diameter Heavy Gauge PVC conduits concealed in Building fabrics linking radially from the Roof to the Ground c/w all accessories (Couplers, Half threads, etc)	LM	120		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
D1.07	TEST JUNCTION: Oblong test / Junction for 95 mm sq CU down conductor. This shall be wall mounted recessed consisting of manual disconnection system and in a 160mm by 118mm x 75mm Deep PVC water resistant (IP65) Box.	No.	6		
D1.08	EARTH MATT: Supply & Install Earthing Matt for system complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) This should be extended to the earth inspection chamber with appropriate 95mm SC Cable	No.	6		
D1.09	EARTH INSPECTION PIT: Heavy Gauge (5000Kgs) minimum Earth Inspection pit, with Lockable lid & should be engraved 'EARTH' or with earth Symbol	No.	6		
D1.10	EARTH ROD: Earth rod - tape clamp type A	No.	6		
D1.11	COUNTER: Digital Lightning Flash counter to Log in the lightning strikes that occur within the external lightning protection system. This should have a range of upto 100kA (10/350 μ s). This should be as Ingesco CDR-1.	No.	1		
D1.12	ACCESSORIES: Saddles, fasteners, Clips and clamps etc required for securing the various installations	Item	1		
D1.13	BONDING: Equipotential Bonding of the lightning protection system to the main earthing system present in the proposed development	Item	1		
D1.14	SUB-TOTAL c/f to WAREHOUSE ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE				

E WAREHOUSE ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE

ITEM	DESCRIPTION	TOTAL (KShs).
E1	WAREHOUSE - LIGHTING & SMALL POWER INSTALLATIONS	
E2	WAREHOUSE - LV SWITCHGEAR	
E3	WAREHOUSE - SUBMAINS CABLING & SYSTEMS EARTHING	
E4	WAREHOUSE - LIGHTNING PROTECTION & ACCESSORIES	
E5	Contingency	6,500,000
E6	TOTAL c/f to ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

OFFICE BLOCK

ELECTRICAL

INSTALLATIONS

OFFICE BLOCK INSTALLATIONS**F OFFICE BLOCK - LIGHTING & SMALL POWER INSTALLATIONS****F1 Lighting Cabling 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 1 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.

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F1.01	LIGHTING POINTS (1WAY): 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.	1,005		
F1.02	EXTRACT FAN POINTS (1WAY): Ditto but for toilet extract fan	No.	105		
F1.03	LIGHTING POINTS (2WAY): 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.	1,205		
F1.04	LIGHTING POINTS (Intermediate): Intermediate 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.	60		
F1.05	LIGHTING POINTS (Emergency): Emergency 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.	105		
F1.06	SENSOR LIGHTING POINTS: Occupational Sensor 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.	212		
F1.07	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

F2 Switches & Accessories

All Switches & Associated Accessories shall be as Legrand Belanko (White)

F2.01	10A 1 Gang 1 Way Switch	No.	225		
F2.02	10A 1 Gang 2 Way Switch	No.	72		
F2.03	10A 2 gang 1way Switch	No.	65		
F2.04	10A 2 gang 2 way Switch	No.	120		
F2.05	10A 3 gang 1 way Switch	No.	5		
F2.06	10A 3 gang 2 way Switch	No.	10		
F2.07	10A Intermediate Switch	No.	60		
F2.08	10A 1 Gang Dimmer Switch	No.	10		
F2.09	10A 2 Gang Dimmer Switch	No.	5		
F2.10	10A 1 Gang 1 Way ARCHITRAVE Switch	No.	55		
F2.11	10A 1 Gang 2 Way ARCHITRAVE Switch	No.	105		
F2.12	10A 2 gang 1way ARCHITRAVE Switch	No.	5		
F2.13	10A 2 gang 2 way ARCHITRAVE Switch	No.	5		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F2.14	10A 1 Gang 1 Way WATERPROOF Switch	No.	1		
F2.15	10A 1 Gang 2 Way WATERPROOF Switch	No.	3		
F2.16	10A 2 gang 1way WATERPROOF Switch	No.	1		
F2.17	10A 2 gang 2 way WATERPROOF Switch	No.	1		
F2.18	10A Intermediate WATERPROOF Switch	No.	1		
F2.19	TYPE OS1: Ceiling mount PIR Sensor with a 360 degree view angle and a 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 Should be as HONEYWELL EX-OR MULTI-FUNCTION PIR to Engineers approval.	No.	197		
F2.20	TYPE OS3 (LONG RANGE MICROWAVE SENSOR): Ceiling Surface mount Long Range Microwave Sensor with a 360 degree view angle and a hard shell spherical lens. The sensor/detector should have a mounted range of 60m and mounted at a height of 5m. The Sensor should be Programmable with infrared programmer from ground level. This Should be as HONEYWELL EX-OR LONG RANGE MICROWAVE SENSOR to Engineers approval.	No.	15		
F2.21	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

F3 Light Fittings & Accessories

Fittings Must be quoted for as Specified below.

F3.01	TYPE 2A: Recessed 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 Leme lighting or Thorn Specline LED	No.	847		
F3.02	TYPE 2Ae: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	180		
F3.03	TYPE 2A: DIMMABLE Recessed 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 Leme lighting or Thorn Specline LED	No.	140		
F3.04	TYPE 4A: Recessed Modular 60W LED Luminaire for lay in installation with MPT Optic & Opal diffuser for 3500 lm. This should be 1200mm by 600mm with a depth of 63mm Maximum, IP40 Rated c/w Driver & all accessories. This will be as Leme lighting or Thorn Specline LED	No.	5		
F3.05	TYPE 4Ae: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	2		
F3.06	TYPE A: Ceiling Mount Bold & Versatile Circular Luminaire of 285mm Diameter and 73mm Depth for 1200lm LED (12W) with polycarbonate body, 'flat' opal and prismatic diffuser c/w electronic gear, IP65 Rated as THORN DANUBE	No.	40		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F3.07	TYPE Ae: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	24		
F3.08	TYPE B: Cast Aluminium Bulkhead 254mm length & 114mm wide for as Thorn OLV/OLG c/w 1x14W energy saving lamps. IP65 Rated.	No.	40		
F3.09	TYPE GS1: Vertical SURFACE MOUNTED Glarefree Downlights for 18W, 1000lm 3500K LED with constant colour Temperature (i.e. Ra>92) over the product life cycle. This should be 165mm Diameter & 120mm Height, IP44 Rated, Body & Bezel made of die cast aluminium with matt finish and a satin silver decorative inner ring c/w all accessories. This will be as Leme lighting or THORN BASE LED	No.	48		
F3.10	TYPE GS1e: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	12		
F3.11	TYPE G1: Vertical Recessed Glarefree Downlights for 18W, 1000 lm 3500K LED with constant colour Temperature (i.e. Ra>92) over the product life cycle. This should be 165mm Diameter, IP44 Rated, Body & Bezel made of die cast aluminium with matt finish and a satin silver decorative inner ring c/w all accessories. This will be as Leme lighting or THORN BASE LED	No.	135		
F3.12	TYPE G1e: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	60		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F3.13	TYPE G2: Round Recessed Downlights for 6 x 1.2W LED Light Source. This should be fixed. This should contain High quality OSRAM LEDs of 3000K Colour, cool light with no IR/UV Radiation. This should be 120mm Diameter, IP65 Rated, Housing made of aluminium, painted titan-grey c/w all accessories. This will be as Leme lighting or THORN D-CO LED Downlight	No.	15		
F3.14	TYPE M: Slim Surface Mounted Mirror Light with Body and End Caps made of extruded aluminium c/w opal polycarbonate diffuser with glare free distribution for 14W T5 fluorescent lamp with dimensions as 616mm by 90mm width by 60mm height as THORN CIMI	No.	50		
F3.15	TYPE G3: Round Recessed Downlights for 3 x 1.2W LED Light Source. This should be with Swivel to 35 Degrees beam. This should contain High quality OSRAM LEDs of 3000K Colour, cool light with no IR/UV Radiation. This should be 85mm Diameter, IP20 Rated, Housing made of aluminium, painted titan-grey c/w all accessories. This will be as Leme lighting or THORN D-CO LED Downlight	No.	252		
F3.16	TYPE UD1: Wall Mount Uplighter & Downlighter. Should have 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp holder and complying to category T2 of BS EN 61184 c/w Lamp and all connection accessories. This should be, Grey finish 6.5W LED lamp with constant colour Temperature (i.e. Ra>92) over the product life cycle, IP54 Rated, 3000K with dimensions of W=80mm, H=142mm & D=65. This is as FORLIGHT LOYD	No.	10		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F3.17	TYPE UD2: Contemporary Wall mounted Uplight & Downlight Floodlight for 2 x 42W TC-TEL. Body and frame shall be made of Die cast Aluminium with RAL9007 colour. This should be 200mm in Diameter and 450mm in Height, IP65 Rated, with gear integrated & frosted glass c/w all bulbs and accessories. This is as THORN CESAR 3	No.	35		
F3.18	TYPE P: Hanging pendant with aluminium lampshade of 180mm Diameter and 1100mm height c/w 1 x 14W Energy saving lamp. This is as EGLO MERCUR 88293	No.	60		
F3.19	TYPE RL - Recessed Antiglare Circular Ramp lights. Should employ protected high frequency gear for single LED lamp, 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp and complying to category T2 of BS EN 61184 c/w all connection accessories. This should be IP67 Rated, Grey Die Cast Aluminium body finish with Opal diffuser and 5W LED Maximum Output as Thorn Via	No.	28		
F3.20	TYPE 4P: 1200mm long HPF water proof fluorescent fittings for TWIN tubes This should be IP65 rated with Sheet steel gear tray and polycarbonate fixing clips and c/w all other accessories and 1 x 17W LED tubes. This shall be as THORN AQUAFORCE II	No.	111		
F3.21	TYPE 4Pe: Ditto but emergency version with an emergency backup gear for 3hr autonomy	No.	38		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F3.22	<p>TYPE 4L - Surface Mounted Square slim aluminium luminaire with acrylic diffuser employing protected high frequency gear for LED. Should employ protected high frequency gear for single LED lamp, 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp and complying to category T2 of BS EN 61184 c/w all connection accessories. This should be IP65 Rated, Extruded Anodised Aluminium finish with Opal Polycarbonate diffuser and 25W Maximum Output as THE ONE INFINITE LED</p> <p>NOTE: Fitting Should be for Linear Lighting System with no intermediate gaps. All connection accessories to be included in quotation.</p>	No.	30		
F3.23	<p>TYPE GB: Garden Bollards of 1000mm height by 260mm diameter. To be of Aluminium for root / flange Mounting with Conical Sandblasted diffuser employing 26W TC-D Lamp. This is as THORN AVENUE DECO BOLLARD</p>	No.	10		
F3.24	<p>TYPE RFL - Recessed Floor Light for Feature wash-ups. Should have 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp holder and complying to category T2 of BS EN 61184 c/w Lamp and all connection accessories. This should be, Chrome Finish, 18W LED lamp with constant colour Temperature (i.e. Ra>92) over the product life cycle, IP67 Rated, 3000K with dimensions of Dia=180mm & D=90mm. Should Have a beam Angle of 25 Degrees. It should include a glare free diffuser. This is as THE ONE GEA POWER LED</p>	No.	6		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F3.25	TYPE WW2 - Wall Mount Wall Washer Light for Wall wash-ups. Should have 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp holder and complying to category T2 of BS EN 61184 c/w Lamp and all connection accessories. This should be, Chrome Aluminium Finish, 70W LED lamp with constant colour Temperature (i.e. Ra>92) over the product life cycle, IP65 Rated, RGBW (4000K) with dimensions of L=1000mm, W=82mm & D=108mm. It should be adjustable. Should be complete with Driver. This is as THE ONE SANAT	No.	12		
F3.26	TYPE ST: LED 3-LED cuttable flexible striplight. This should come complete with all accessories & gear. This should be as Massive Neo-Neon Flex	LM	100		
F3.27	TYPE ST Channel: Aluminium Chanel for Striplight Above	LM	100		
F3.28	TYPE UW: LED Underwater Recessed Luminaire of 125mm Diameter with stainless steel finish and IP68 rated. This is as EGLO 89537	No.	10		
F3.29	TYPE STL - Recessed Step Light 02. Should have Lamp holder with metallic ring clips, 3 In-line terminals, heat resisting wires connecting the terminals in the base to the lamp holder and complying to category T2 of BS EN 61184 c/w Lamp and all connection accessories. This should have Chrome Finish, 2.2W LED lamp with constant colour Temperature (i.e. Ra>92) over the product life cycle, IP65 Rated, 3000K with dimensions of Dia=95mm & D=72mm. This is as THE ONE GEA DIRECT 05-9757-CA-CL	No.	70		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F3.30	EXIT A: 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 life cycle as THORN VOYAGER LED.	No.	40		
F3.31	EXIT B: Self contained Wall mounted Maintained Single sided 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 Polycarbonate Body, Polycarbonate Diffuser Blade & for 8W LED with constant colour Temperature (i.e. Ra>92) over the product life cycle as THORN VOYAGER SIGMA	No.	16		
F3.32	EXIT C: Self contained Suspended Double Sided Maintained LED Exit Sign. It should have a minimum viewing distance of 30 meters & 3-Hour maintained operation inbuilt battery system. This should be Silver finish with Extruded Aluminium Body, Engraved flame retardant acrylic Blade & for 11W TC-SEL Compact Fluorescent Lamps. This should be complete with 1m Length Tube Suspension. This is as THORN VOYAGER ELITE SX	No.	10		
F3.33	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

F4 Cable Ladders, Cable Trays, Trunking & Conduits Installations

F4.01	CABLE LADDER (POWER): 300 x 100mm POWDER COATED (WHITE) steel factory fabricated Cable Ladder complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	60		
F4.02	CABLE LADDER (POWER): 600 x 100mm POWDER COATED (WHITE) steel factory fabricated Cable Ladder complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	185		
F4.03	RISERS CABLE TRAY (POWER DUCTS): 300 x 50mm POWDER COATED (WHITE) 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	240		
F4.04	RISERS CABLE TRAY (ICT DUCTS): 300 x 50mm POWDER COATED (ORANGE) 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	240		
F4.05	HORIZONTAL CABLE TRAY (DATA): 400 x 50mm POWDER COATED (WHITE) 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	1,855		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F4.06	HORIZONTAL CABLE TRAY (POWER): 400 x 50mm POWDER COATED (ORANGE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	1,855		
F4.07	CABLE TRAY (POWER) : 75 x 50mm POWDER COATED (WHITE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	85		
F4.08	CABLE TRAY (POWER) : 150 x 50mm POWDER COATED (WHITE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	20		
F4.09	CABLE TRAY (POWER) : 200 x 50mm POWDER COATED (WHITE) steel factory fabricated Cable tray complete with angle bends, Tees, end caps to detail and mounting brackets & accessories to approval.. Includes equipotential bonding.	LM	20		
F4.10	TRUNKING (LIGHTING): 50 x 40mm, 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. This shall be suspended by Z-Brackets with Rods at a distance of at least 2m.	LM	120		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F4.11	TRUNKING: 100 x 50mm, 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	180		
F4.12	TRUNKING: 250 x 50mm, 3 compartment Screw on 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	4,860		
F4.13	TRUNKING FACEPLATES (SINGLE): Trunking faceplates for Single outlets for raw power	No.	690		
F4.14	TRUNKING FACEPLATES (TWIN): Trunking faceplates for Twin outlets for raw power	No.	1,500		
F4.15	FLOOR PVC CONDUITS: 50mm Ø HG PVC conduits for linking Services from the Ducts and from the Trunking	LM	3,570		
F4.16	FLOOR PVC CONDUITS: 38mm Ø HG PVC conduits for linking from the Duct to the Equipment	LM	4,550		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F4.17	CABLE TIES: Allow for cable ties at one meter interval along the cable trays and cable ladders above.	Floors	7		
F4.18	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.	202		
F4.19	ADAPTER JUNCTION BOXES: 150 x 150 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	10		
F4.20	ADAPTER JUNCTION BOXES: 200 x 250 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	110		
F4.21	ADAPTER JUNCTION BOXES: 300 x 200 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	20		
F4.22	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

F5 Power Supply

All equipment Isolators will be located not more than 2 meters from the actual equipment. This should be considered when quoting for the points.

All Sockets to be as Legrand Belanko (Raw Power - White, Clean Power- Red inner trim)

F5.01	RAW POWER PLUG POINT: DP control switch outlet points for raw power wired in 3core 4.0mm sq flex cu cables wired from DB to each point. (BLACK CABLES)	No.	194		
F5.02	DP SWITCH RAW: 20A fused, unswitched Screwless DP control switch with neon indicator for power	No.	194		
F5.03	CLEAN POWER PLUG POINT: DP control switch outlet points for raw power wired in 3core 4.0mm sq flex cu cables wired from DB to each point. (WHITE CABLES)	No.	194		
F5.04	DP SWITCH CLEAN: 20A fused, unswitched Screwless DP control switch with neon indicator for power	No.	194		
F5.05	SOCKETS POINTS: Ring mains socket outlets in 2.5mm ² PVC - Insulated twin + earth CU cables drawn in concealed 20mm Ø HG PVC conduits concealed in building fabrics or in trunking.	No.	1,277		
F5.06	SOCKET (13A): 13A twin shuttered switched socket plate c/w neon indicator	No.	1,195		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F5.07	SOCKET (15A): 15A Single shuttered switched socket plate c/w neon indicator	No.	7		
F5.08	SOCKET (WATERPROOF-13A): 13A twin shuttered WATERPROOF switched socket plate c/w neon indicator This Shall be as MK K56482BLK	No.	60		
F5.09	SOCKET (FLOOR-13A): 13A twin shuttered HINGED FLOOR SOCKET WITH STAINLESS COVER switched socket plate c/w neon indicator	No.	15		
F5.10	CLEAN POWER SOCKETS POINTS: Clean power outlets wired in 2.5mm ² PVC - Insulated twin + earth CU cables drawn in concealed Trunking	No.	1,075		
F5.11	SOCKET (CLEAN-13A): 13A twin shuttered switched socket plate c/w neon indicator as Legrand / MK (Red Sockets)	No.	1,075		
F5.12	HAND DRIERS: Hand drier outlet point wired in 2.5mm ² PVC-insulated twin + earth CU cables in 20mm HG PVC conduit	No.	44		
F5.13	DP SWITCH (HAND DRIER): 20A fused Switched DP control switch with neon indicator for power c/w 2.5mm ² 3 core white flex cable to hand drier	No.	44		
F5.14	UNDERSINK WATER HEATER POWER POINTS: Single phase Systems Panels outlet points wired in 2.5mm ² twin + earth PVC insulated CU cables.	No.	6		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F5.15	DP SWITCH (UWH): 20A fused, unswitched DP control switch with neon indicator	No.	6		
F5.16	URINAL & WHB POWER POINTS: Urinal sensors outlet point wired in 1.5mm sq PVC-insulated twin + earth CU cables in 20mm HG PVC conduit c/w conduit outlet to urinal sensor position from floor distribution board in duct.	No.	107		
F5.17	PANELS POWER POINTS: Single phase Systems Panels outlet points wired in 2.5mm ² twin + earth PVC insulated CU cables.	No.	10		
F5.18	DP SWITCH (PANELS): 20A fused, unswitched DP control switch with neon indicator	No.	10		
F5.19	FIRE ALARM: Conduit Outlets for fire alarm interlinked in concealed 25mm Ø HG PVC conduit c/w draw wire.	No.	664		
F5.20	CCTV: Conduit Outlets for CCTV in concealed 20mm Ø HG PVC conduit c/w draw wire.	No.	125		
F5.21	Access Control System: Conduit Outlets for ACS in concealed 20mm Ø HG PVC conduit c/w draw wire.	No.	480		
F5.22	INDUSTRIAL PLUG (1-PH) - 32A 3-Pin Industrial plug c/w Isolator control switch for System above with enclosure as Hager (IP65 rated)	No.	11		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F5.23	CABLING (INDUSTRIAL PLUG): Single phase outlet points wired in 3 Core 6mm sq SC PVC FLEX CU cables drawn in concealed 25mm Ø HG PVC conduits concealed in building fabrics.	No.	11		
F5.24	INDUSTRIAL PLUG (3-PH) - 32A 5-Pin Industrial plug c/w Isolator control switch for System above with enclosure as Hager (IP65 rated)	No.	11		
F5.25	CABLING (INDUSTRIAL PLUG): Three phase outlet points wired in 5 Core 6mm sq SC PVC FLEX CU cables drawn in concealed 25mm Ø HG PVC conduits concealed in building fabrics.	No.	11		
F5.26	Labelling of final sub-circuits. Labelling of all Final sub-circuits should be done in red Traffolyte labels properly anchored on the specific devices.	Item	1		
F5.27	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

F6 Mechanical Equipment Power Supply

All equipment Isolators will be located not more than 2 meters from the actual equipment. This should be considered when quoting for the points.

MECHANICAL VENTILLATION - OFFICE

F6.01	ISOLATOR - BASEMENT VENTILLATION FANS: 20A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	4		
F6.02	CABLING - BASEMENT VENTILLATION FANS: Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	320		
F6.03	ISOLATOR - STAIRCASE PRESSURIZATION: 20A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	3		
F6.04	FANS CABLING - STAIRCASE PRESSURIZATION FANS : Three phase power outlet points wired in 6mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	450		
F6.05	ISOLATOR - TOILET EXTRACT FAN: 10A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	1		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F6.06	FANS CABLING - TOILET EXTRACT FANS : Three phase power outlet points wired in 4mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	45		
F6.07	ISOLATOR - KITCHENETTE EXTRACT FAN: 10A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	1		
F6.08	FANS CABLING - KITCHENETTE EXTRACT FANS : Three phase power outlet points wired in 4mm sq 4 Core PVC SWA PVC CU cables from Distribution Board to Equipment Isolator in close proximity to the Unit	LM	45		
F6.09	Labelling of final sub-circuits. Labelling of all Final sub-circuits should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		
F6.10	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

F7 Power distribution and Cabling

All Distribution board & Consumer Units incomers should have a short circuit breaking capacity of 25kA to IEC standards.

All MCB's should have a short circuit breaking capacity of 10-15kA to IEC standards.

All Distribution board & Consumer Units incomers should have Rated Live busbars, Neutral busbar & Earth busbar to IEC standards.

All cables to distribution boards should be XLPE CU cables and this should be catered for in the rates.

All Distribution Boards shall be as Merlin Gerlin

All MCB's shall have Isobar Mechanism

F7.01	DISTRIBUTION BOARDS (RAW POWER) DB'R_x-x' : 16 way 100A rated TPN Wall Surface mounted distribution board as Merlin Gerlin.	No.	14		
F7.02	10A SP MCB with Isobar Mechanism	No.	112		
F7.03	20A SP MCB with Isobar Mechanism	No.	210		
F7.04	32A SP MCB with Isobar Mechanism	No.	168		
F7.05	63A SP MCB with Isobar Mechanism	No.	70		
F7.06	SP Blanking plates	No.	16		
F7.07	TP Blanking plates	No.	16		
F7.08	CABLING (RISING MAINS to DB Above): 25mm ² 4-Core PVC SWA PVC CU Cable	LM	128		
F7.09	Cable glands for above cables	No.	28		
F7.10	Cable lugs for for above cables	No.	112		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F7.11	DISTRIBUTION BOARDS (ROOF SERVICES) DB'RS' : 12 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	1		
F7.12	20A SP MCB with Isobar Mechanism	No.	10		
F7.13	SP Blanking plates	No.	2		
F7.14	TP Blanking plates	No.	9		
F7.15	CABLING (OFFICE BLOCK DISTRIBUTION LV PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	70		
F7.16	Cable glands for above cables	No.	2		
F7.17	Cable lugs for for above cables	No.	8		
F7.18	DISTRIBUTION BOARDS (MECHANICAL VENTILLATION) DB'BMV' : 6 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	1		
F7.19	20A TP MCB with Isobar Mechanism	No.	4		
F7.20	SP Blanking plates	No.	0		
F7.21	TP Blanking plates	No.	2		
F7.22	CABLING (OFFICE BLOCK DISTRIBUTION LV PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	40		
F7.23	Cable glands for above cables	No.	2		
F7.24	Cable lugs for for above cables	No.	8		
F7.25	DISTRIBUTION BOARDS (OFFICE BLOCK EXTERNAL LIGHTING) DB'EL-OB' : 4 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	1		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F7.26	10A SP MCB with Isobar Mechanism	No.	12		
F7.27	SP Blanking plates	No.	0		
F7.28	TP Blanking plates	No.	0		
F7.29	CABLING (OFFICE BLOCK DISTRIBUTION LV PANEL to DB Above via Timer/Photocell Circuit): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	30		
F7.30	Cable glands for above cables	No.	2		
F7.31	Cable lugs for for above cables	No.	8		
F7.32	EXTERNAL LIGHTING TIMER: Façade Lighting Electronic Timer as Merlin Gerlin (40A Rated)	No.	1		
F7.33	DISTRIBUTION BOARDS (CLEAN POWER DB'CL-xx': 8 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	12		
F7.34	20A SP MCB with Isobar Mechanism	No.	180		
F7.35	SP Blanking plates	No.	0		
F7.36	TP Blanking plates	No.	18		
F7.37	CABLING (UPS DISTRIBUTION PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	840		
F7.38	Cable glands for above cables	No.	24		
F7.39	Cable lugs for for above cables	No.	96		
F7.40	DISTRIBUTION BOARDS (SERVER ROOM CLEAN POWER) DB'CL-SR': 6 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	1		
F7.41	20A SP MCB with Isobar Mechanism	No.	12		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F7.42	SP Blanking plates	No.	0		
F7.43	TP Blanking plates	No.	4		
F7.44	CABLING (UPS DISTRIBUTION PANEL to DB Above): 10mm ² 4-Core PVC SWA PVC CU Cable	LM	75		
F7.45	Cable glands for above cables	No.	2		
F7.46	Cable lugs for for above cables	No.	8		
F7.47	ISOLATOR (UPS SERVER ROOM): 40A TPN control Isolator switch for 3 phase unit with enclosure as Hager (IP65 Rated)	No.	2		
F7.48	CONSUMER UNIT (ICT ROOMS CLEAN POWER) CU'CL-SRFx': 8 way 100A rated SPN Surface Mounted consumer unit for as SPS c/w transparent glass cover	No.	12		
F7.49	20A SP MCB with Isobar Mechanism	No.	60		
F7.50	SP Blanking plates	No.	36		
F7.51	CABLING (DB'CL-SR' to CU Above): 10mm ² 2-Core PVC SWA PVC CU Cable	LM	590		
F7.52	Cable glands for above cables	No.	24		
F7.53	Cable lugs for for above cables	No.	48		
F7.54	OFFICE UPS DISTRIBUTION POWER PANEL (DB'OFF-UPS'): TPN Custom Made Surface WALL MOUNT Distribution Board. This should be as per the schematic drawing & have the following specifications: • 16 Way Outgoers Panel	No.	1		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
	<ul style="list-style-type: none"> • Main Incomer - 250A TPN MCCB • Should contain Appropriate Neutral & Earth Bars • Should contain a connector block for termination of outgoing cables. 				
F7.55	40A TP MCB with Isobar Mechanism	No.	14		
F7.56	SP Blanking plates	No.	0		
F7.57	TP Blanking plates	No.	2		
F7.58	CABLING (WAREHOUSE DISTRIBUTION LV PANEL to PANEL Above): 35mm ² 4-Core PVC SWA PVC CU Cable (2 Runs)	LM	80		
F7.59	Cable glands for above cables	No.	4		
F7.60	Cable lugs for for above cables	No.	16		
F7.61	<p>LIFTS POWER PANEL 01 (DB'L'): TPN Custom Made Surface Mounted Distribution Board. This should be as per the schematic drawing & have the following specifications:</p> <ul style="list-style-type: none"> • 6 Way Outgoers Panel • Main Incomer - 125A TPN MCCB • Should contain Appropriate Neutral & Earth Bars • Should contain a connector block for termination of outgoing cables. 	No.	1		
F7.62	MCCB: 63A TP MCCB for compatible with DB above	No.	4		
F7.63	MCB: 10A SP MCB for compatible with DB above	No.	4		
F7.64	MCB: 32A SP MCB for compatible with DB above	No.	4		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
F7.65	BLANKING PLATE: SP Blanking plate compatible with DB above	No.	1		
F7.66	BLANKING PLATE: TP Blanking plate compatible with DB above	No.	0		
F7.67	CABLING (LV PANEL to LIFT PANEL Above): 35mm ² 4-Core PVC SWA PVC CU Cable	LM	70		
F7.68	Cable glands for above cables	No.	2		
F7.69	Cable lugs for for above cables	No.	8		
F7.70	Labelling of DB's and CU's and final sub-circuits. Labelling of all DB's, CU's and Final sub-circuits should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		
F7.71	Total c/f to Office Block Lighting & Small Power Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

OFFICE BLOCK - LIGHTING & SMALL POWER INSTALLATIONS PRICE COLLECTION
PAGE

F1	Lighting Cabling Installations				
F2	Switches & Accessories				
F3	Light Fittings & Accessories				
F4	Cable Ladders, Cable Trays, Trunking & Conduits Installations				
F5	Power Supply				
F6	Mechanical Equipment Power Supply				
F7	Power distribution and Cabling				
F8	SUB-TOTAL c/f to OFFICE BLOCK ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE				

G OFFICE BLOCK - LV SWITCHGEAR**G1 OFFICE BLOCK DISTRIBUTION LV PANEL**

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
G1.01	<p>OFFICE BLOCK DISTRIBUTION LV PANEL as per schematic drawing</p> <p>FREE STANDING PANEL, Type Tested assembly (TTA),, modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 3b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Mains available & Mains on Load, Generator available & Generator on load, Disaster Recovery available, Disaster Recovery on Load.</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Mains available & Mains on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	No.	1		
G1.02	Main Incomer				
a	1000Amp 3P MCCB (DRAWOUT & ADJUSTABLE) with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
G1.03 Busbars					
a	1250A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		
G1.04 OUTGOERS					
a	630Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
b	250Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
c	125Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
d	100Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	2		
e	63Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
f	40Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	3		
g	Spareways for upto 100Amp 3P MCCB	No.	3		
G1.05	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

G2 RISING MAINS - RAW POWER

G2.01	Fabricated incomer with 630 TPN MCCB for rising mains protection isolation to match the Switchgear. The MCCB should be adjustable on a scale of 0.75 to 1 and with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz. The Isolator should comprise of a Digital meter as PM820 or higher to monitor as a minimum the following: Supply Available & Supply on Load, Voltage, Current, KW, kWh, KVA, power factor, Recorded Maximum Load, etc.	No.	1		
G2.02	End Feeder Unit for termination of the cable feed to the busbar	No.	1		
G2.03	Standard length busbar (3M) with male & female ends and all other fixing accessories	LM	21		
G2.04	End Closer Unit for termination of the busbar	No.	1		
G2.05	Vertical expansion units	No.	10		
G2.06	Vertical Fixing Unit (60mm)	No.	1		
G2.07	63A TPN Plug-In Tap-Off Box (IP55 rated) installed at all floors	No.	12		
G2.08	Fire barrier kit on every floor to match the rising mains as Zucchini S120 Fire barrier kit or equivalent to engineers approval.	Floors	7		
G2.09	Sum for all fixing accessories including suspension brackets	Item	1		
G2.10	Sub -Total c/f to RISING MAINS (BUSBARS) PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

OFFICE BLOCK LV SWITCHGEAR PRICE COLLECTION PAGE

G1	OFFICE BLOCK DISTRIBUTION LV PANEL	
G2	RISING MAINS - RAW POWER	
G3	SUB-TOTAL c/f to OFFICE BLOCK ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

H OFFICE BLOCK - SUBMAINS CABLING & SYSTEMS EARTHING

All cables to distribution boards should be XLPE CU cables and this should be catered for in the rates.

All cables with Multiple runs have their measurements catered for in the quantities. Rate should be for single Run only

Colour code for 3-phase system cabling should be: Red for red phase, Yellow for yellow Phase, Blue for blue phase, Black for Neutral & Yellow/Green for Earth cables.

All HT Cabling to be as Elsewedy Cables

All LV Cabling to be as East African Cables

All cables Labelling tags shall be as Legrand and should be done on both ends

H1 OFFICE BLOCK LV CABLING

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
H1.01	TRANSFORMER 01 to MAINS & GENERATOR CHANGEOVER LV PANEL: 630mm sq PVC SC XPLE CU Cables. (Wired in 3 runs / phase + 2 runs of Neutral)	LM	1320		
H1.02	Cable glands for above cables	No.	22		
H1.03	Cable lugs for for above cables	No.	22		
H1.04	OFFICE BLOCK DISTRIBUTION LV PANEL to RISING MAINS 01 (RAW POWER): 150mm sq PVC SC XPLE CU Cables. (Wired in 2 runs / phase + 2 runs of Neutral)	LM	360		
H1.05	Cable glands for above cables	No.	16		
H1.06	Cable lugs for for above cables	No.	16		
H1.07	LABELLING: Labelling of Cables and final sub-circuits. Labelling should be done in red Traffolytte labels properly anchored on the specific devices. As Legrand	Item	1		
H1.08	SUB-TOTAL c/f to OFFICE BLOCK - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

H2 OFFICE BLOCK SYSTEMS EARTHING

Pricing to include earth treatment where required using appropriate compounds such as Bentonite and marconite to achieve stipulated impedance. Under no circumstance should charcoal or common salt be used. NOTE: Manufacturers Proof will be required

All cables with Multiple runs have their measurements catered for in the quantities. Rate should be for single Run only

All earthing Cables Colour code shall be Yellow/Green or Green

All earth Inspection chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

All cables Labelling tags shall be as Legrand

OFFICE BLOCK LV ROOM EARTHING:

H2.01	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
H2.02	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
H2.03	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	2		
H2.04	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 150mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	130		
H2.05	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 150mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	70		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
<u>OFFICE BLOCK SERVER ROOM & ICT SYSTEMS EARTHING:</u>					
H2.06	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
H2.07	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
H2.08	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	10		
H2.09	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 70mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	170		
H2.10	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 70mm sq PVC SC XPLE CU Cables	LM	200		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
<u>OFFICE BLOCK POWER & ICT DUCTS EARTHING:</u>					
H2.11	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	32		
H2.12	LV ROOM EARTH BAR - DUCT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 95mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	300		
<u>ACCESSORIES</u>					
H2.13	Supply and install 11mm cable markers for on both ends of the cables above.	Item.	1		
H2.14	Allow for cable ties for fastening all the above cables at every 300mm interval	Item.	1		
H2.15	SUB-TOTAL c/f to OFFICE BLOCK - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

OFFICE BLOCK - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE

H1	OFFICE BLOCK LV CABLING	
H2	OFFICE BLOCK SYSTEMS EARTHING	
H3	SUB-TOTAL c/f to OFFICE BLOCK ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

I OFFICE BLOCK - LIGHTNING PROTECTION & ACCESSORIES

Lightning Protection System shall be as INDELEC LIGHTNING PROTECTION

*Pricing to include earth treatment where required using appropriate compounds such as Bentonite and marconite to achieve stipulated impedance. Under no circumstance should charcoal or common salt be used. **NOTE: Manufacturers Proof will be required***

All earth Inspection pit / chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

All earthing Cables Colour code shall be Yellow/Green or Green

All Joints on the earth cables shall be cad Welded To ensure a firm joint.

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
I1.01	LIGHTNING ROD: Modular Lightning rod with Early Streamer Emission lightning conductor & Incorporates Optimax technology. This should include self Testing Kit. This is as PREVECTRON® 3 S 60TC	No.	2		
I1.02	STEEL MAST (LIGHTNING ROD): Appropriate Steel mast of 35mm Diameter and 2 Meter height Including Prevelectron Adaptor and all other mounting accessories	No.	2		
I1.03	INFORMATION SIGN: Appropriate Lightning protection Information sign in English	No.	1		
I1.04	TESTING REMOTE: PREVECTRON® 3 Self Testing Digital Remote	No.	1		
I1.05	DOWN CONDUCTORS: 25mm x 3mm tinned annealed copper tape as Furse Cat. Ni. TC 230 or Braided Bare Electrolytic Copper Cable of 95mm Diameter for down conductors	LM	80		
I1.06	CONDUIT LINK: 50mm diameter Heavy Gauge PVC conduits concealed in Building fabrics linking radially from the Roof to the Ground c/w all accessories (Couplers, Half threads, etc)	LM	80		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
I1.07	TEST JUNCTION: Oblong test / Junction for 95 mm sq CU down conductor. This shall be wall mounted recessed consisting of manual disconnection system and in a 160mm by 118mm x 75mm Deep PVC water resistant (IP65) Box.	No.	2		
I1.08	EARTH MATT: Supply & Install Earthing Matt for system complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) This should be extended to the earth inspection chamber with appropriate 95mm SC Cable	No.	2		
I1.09	EARTH INSPECTION PIT: Heavy Gauge (5000Kgs) minimum Earth Inspection pit, with Lockable lid & should be engraved 'EARTH' or with earth Symbol	No.	2		
I1.10	EARTH ROD: Earth rod - tape clamp type A	No.	2		
I1.11	COUNTER: Digital Lightning Flash counter to Log in the lightning strikes that occur within the external lightning protection system. This should have a range of upto 100kA (10/350 μ s). This should be as Ingesco CDR-1.	No.	1		
I1.12	ACCESSORIES: Saddles, fasteners, Clips and clamps etc required for securing the various installations	Item	1		
I1.13	BONDING: Equipotential Bonding of the lightning protection system to the main earthing system present in the proposed development	Item	1		
I1.14	SUB-TOTAL c/f to OFFICE BLOCK ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE				

J OFFICE BLOCK ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE

ITEM	DESCRIPTION	TOTAL (KShs).
J1	OFFICE BLOCK - LIGHTING & SMALL POWER INSTALLATIONS	
J2	OFFICE BLOCK - LV SWITCHGEAR	
J3	OFFICE BLOCK - SUBMAINS CABLING & SYSTEMS EARTHING	
J4	OFFICE BLOCK - LIGHTNING PROTECTION & ACCESSORIES	
J5	Contingency	6,700,000
J6	TOTAL c/f to ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

**EXTERNAL
ELECTRICAL
INSTALLATIONS**

EXTERNAL ELECTRICAL INSTALLATIONS**K GATE HOUSES INSTALLATIONS****K1 Lighting Installations**

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
K1.01	LIGHTING POINTS (1WAY): 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.	56		
K1.02	EXTRACT FAN POINTS (1WAY): Ditto but for toilet extract fan	No.	0		
K1.03	LIGHTING POINTS (2WAY): 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.	0		
K1.04	LIGHTING POINTS (Intermediate): Intermediate 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.	0		
K1.05	LIGHTING POINTS (Emergency): Emergency 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.	0		
K1.06	SENSOR LIGHTING POINTS: Occupational Sensor 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.	3		
K1.07	Total c/f to Gate Houses Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

K2 Light Fittings, Switches & Accessories

All Switches & Associated Accessories shall be as Legrand Belanko (White)

Fittings Must be quoted for as Specified below.

K2.01	10A 1 Gang 1 Way Switch	No.	3		
K2.02	10A 1 Gang 2 Way Switch	No.	0		
K2.03	10A 2 gang 1way Switch	No.	2		
K2.04	10A 2 gang 2 way Switch	No.	0		
K2.05	10A 3 gang 1 way Switch	No.	2		
K2.06	10A 3 gang 2 way Switch	No.	0		
K2.07	10A Intermediate Switch	No.	0		
K2.08	TYPE OS1: Ceiling mount PIR Sensor with a 360 degree view angle and a 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 Should be as HONEYWELL EX-OR MULTI-FUNCTION PIR to Engineers approval.	No.	3		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
K2.09	TYPE 4P: 1200mm long HPF water proof flourescent fittings for TWIN tubes This shold be IP65 rated with Sheet steel gear tray and polycarbonate fixing clips and c/w all other accessories and 1 x 17W LED tubes. This shall be as THORN AQUAFORCE II	No.	3		
K2.10	TYPE 4Pe: Ditto but emergengy version with an emergency backup gear for 3hr autonomy	No.	3		
K2.11	TYPE A: Ceiling Mount Bold & Versatile Circular Luminaire of 285mm Diameter and 73mm Depth for 1200lm LED (12W) with polycarbonate body, 'flat' opal and prismatic diffuser c/w ellectronic gear, IP65 Rated as THORN DANUBE	No.	3		
K2.12	TYPE B1: Polycarbonate, anthracite finish diffuser Large prismatic diffuser with polycarbonate finished eyelid and wall mounting brackets as THORN PIAZA II.	No.	6		
K2.13	TYPE GS1: Vertical SURFACE MOUNTED Glarefree Downlights for 18W, 1000lm 3500K LED with constant colour Temperature (i.e. Ra>92) over the product life cycle. This should be 165mm Diameter & 120mm Height, IP44 Rated, Body & Bezel made of die cast aluminium with matt finish and a satin silver decorative inner ring c/w all accessories. This will be as Leme lighting or THORN BASE LED	No.	12		
K2.14	TYPE GS1e: Ditto but emergengy version with an emergency backup gear for 3hr autonomy	No.	6		
K2.15	Total c/f to Gate Houses Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

K3 Cable Ladders, Cable Trays, Trunking & Conduits Installations

K3.01	TRUNKING: 100 x 50mm, 3 compartment Screw on 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	30		
K3.02	TRUNKING FACEPLATES (SINGLE): Trunking faceplates for Single outlets for raw power	No.	6		
K3.03	TRUNKING FACEPLATES (TWIN): Trunking faceplates for Twin outlets for raw power	No.	15		
K3.04	FLOOR PVC CONDUITS: 50mm Ø HG PVC conduits for linking Services from the Ducts and from the Trunking	LM	150		
K3.05	FLOOR PVC CONDUITS: 38mm Ø HG PVC conduits for linking from the Duct to the Equipment	LM	90		
K3.06	CABLE TIES: Allow for cable ties at one meter interval along the cable trays and cable ladders above.	Item	1		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
K3.07	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.	3		
K3.08	ADAPTER JUNCTION BOXES: 150 x 150 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	1		
K3.09	ADAPTER JUNCTION BOXES: 200 x 250 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	3		
K3.10	ADAPTER JUNCTION BOXES: 300 x 200 x 60mm deep 3-compartment PVC adaptable box with 6No. 32/38 mm knock-out provisions for trunking / conduit- link interphase	No.	1		
K3.11	Total c/f to Gate Houses Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

K4 Power Supply

All equipment Isolators will be located not more than 3meters from the actual equipment. This should be considered when quoting for the points.

All Sockets to be as Legrand Belanko (Raw Power - White, Clean Power- Red inner trim)

K4.01	SOCKETS: Ring mains socket outlets in 2.5mm ² PVC - Insulated twin + earth CU cables drawn in concealed 20mm Ø HG PVC conduits concealed in building fabrics or in trunking.	No.	15		
K4.02	SOCKET (13A): 13A twin shuttered switched socket plate c/w neon indicator	No.	9		
K4.03	SOCKET (WATERPROOF-13A): 13A twin shuttered WATERPROOF switched socket plate c/w neon indicator	No.	6		
K4.04	CLEAN POWER SOCKETS: Clean power outlets wired in 2.5mm ² PVC - Insulated twin + earth CU cables drawn in concealed Trunking	No.	0		
K4.05	SOCKET (CLEAN-13A): 13A twin shuttered switched socket plate c/w neon indicator as Legrand / MK (Red Sockets)	No.	0		
K4.06	HAND DRIERS: Hand drier outlet point wired in 2.5mm ² PVC-insulated twin + earth CU cables in 20mm HG PVC conduit	No.	0		
K4.07	DP SWITCH (HAND DRIER): 20A fused Switched DP control switch with neon indicator for power c/w 2.5mm ² 3 core white flex cable to hand drier	No.	0		

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
K4.08	URINAL & WHB POWER POINTS: Urinal sensors outlet point wired in 1.5mm sq PVC-insulated twin + earth CU cables in 20mm HG PVC conduit c/w conduit outlet to urinal sensor position from floor distribution board in duct.	No.	9		
K4.09	PANELS POWER POINTS: Single phase Systems Panels outlet points wired in 2.5mm ² twin + earth PVC insulated CU cables.	No.	6		
K4.10	DP SWITCH (PANELS): 20A fused, unswitched DP control switch with neon indicator	No.	6		
K4.11	FIRE ALARM: Conduit Outlets for fire alarm interlinked in concealed 25mm Ø HG PVC conduit c/w draw wire.	No.	6		
K4.12	CCTV: Conduit Outlets for CCTV in concealed 20mm Ø HG PVC conduit c/w draw wire.	No.	9		
K4.13	Access Control System: Conduit Outlets for ACS in concealed 20mm Ø HG PVC conduit c/w draw wire.	No.	15		
K4.14	GATE ELECTRIC POWER POINTS (Sliding/ Swinging): Three phase power outlet points wired in 4mm sq 5C Flex CU Cables drawn in 38mm Conduits from Gate House Power Board in Gate house to Sliding Gate Isolators	LM	12		
K4.15	ISOLATOR: 20A TPN Isolator control switch for System above with enclosure as Hager (IP65 rated)	No.	12		
K4.16	Labelling of final sub-circuits. Labelling of all Final sub-circuits should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		
K4.17	Total c/f to Gate Houses Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	--------------	--------------

K5 Power distribution and Cabling

All Distribution board & Consumer Units incomers should have a short circuit breaking capacity of 25kA to IEC standards.

All MCB's should have a short circuit breaking capacity of 10-15kA to IEC standards.

All Distribution board & Consumer Units incomers should have Rated Live busbars, Neutral busbar & Earth busbar to IEC standards.

All cables to distribution boards should be XLPE CU cables and this should be catered for in the rates.

K5.01	DISTRIBUTION BOARDS (RAW POWER - DB'GH-xx') : 8 way 100A rated TPN Wall mounted distribution board as Merlin Gerlin.	No.	3		
K5.02	10A SP MCB with Isobar Mechanism	No.	6		
K5.03	20A SP MCB with Isobar Mechanism	No.	9		
K5.04	32A SP MCB with Isobar Mechanism	No.	3		
K5.05	63A TP MCB with Isobar Mechanism	No.	1		
K5.06	SP Blanking plates	No.	3		
K5.07	TP Blanking plates	No.	14		
K5.08	MAINS & GENERATOR CHANGEOVER LV PANEL to DB's Above: 10mm ² 4-Core PVC SWA PVC CU Cable	LM	265		
K5.09	Cable glands for above cables	No.	6		
K5.10	Cable lugs for for above cables	No.	24		
K5.11	Labelling of DB's and CU's and final sub-circuits. Labelling of all DB's, CU's and Final sub-circuits should be done in red Traffolytte labels properly anchored on the specific devices.	Item	1		
K5.12	Total c/f to Gate Houses Installations Price Collection Page				

ITEM	DESCRIPTION	Unit	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

GATE HOUSES INSTALLATIONS PRICE COLLECTION PAGE

K1	Lighting Installations	
K2	Light Fittings, Switches & Accessories	
K3	Cable Ladders, Cable Trays, Trunking & Conduits Installations	
K4	Power Supply	
K5	Power distribution and Cabling	
K6	SUB-TOTAL c/f to EXTERNAL ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

L EXTERNAL LIGHTING INSTALLATIONS

All earth Inspection chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

All cables Labelling tags shall be as Legrand

All LV Cabling to be as East African Cables

L1 External Lighting Accessories

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
L1.01	CONTROL PILLAR (OUTDOOR): Metal control pillar for external lighting as Merlin Gerlin. This shall Contain a 6 way 100A rated TPN distribution board as Merlin Gerlin.	No.	3		
L1.02	MCCB's: 10A SP MCB with Isobar Mechanism	No.	20		
L1.03	SP Blanking Plates: 10A SP MCB with Isobar Mechanism	No.	4		
L1.04	TP Blanking Plates: 10A SP MCB with Isobar Mechanism	No.	8		
L1.05	EARTHING (CONTROL PILLAR): Comprehensive P.M.E Earthing of the control feeder pillar comprising 6.0mm sq SC earth lead and 1200mm long 15mm Ø CU earth electrode with a driving tip and clamp and a 300 x 300mm concrete manhole with a removable cover.	No.	3		
L1.06	PHOTOCELL: Photocell as Thorn QPK complete with socket and mounting bracket	No.	3		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
L1.07	BYPASS SWITCH: Photocell by-pass switch plate c/w wiring.	No.	3		
L1.08	MOUNTING COLUMN: 1.2M steel column for photocell mounting	No.	3		
L1.09	ELCB: 40.A,500MA fault current c/o e.l.c.b as crabtree	No.	3		
L1.10	CONTACTOR: 40A. DP contactor as telemechanique or equivalent	No.	3		
L1.11	CONTROL SWITCH (PHOTOCELL): 40A DP control switch for photocell override. Complete with wiring etc.	No.	3		
L1.12	CONTROL SWITCH (OVERRIDE): 40A SPN control switch for contactor override	No.	3		
L1.13	Sub-Total c/f to External Lighting Installations Price Collection Page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

L2 External Lighting Cabling

L2.01	CABLING (POLE & EXTERNAL LIGHTS): 1.5mm ² twin + earth CU cable from Light draw box to light	LM	1008		
L2.02	CUT OUTS: Lucy cut - outs complete with 2A HRC fuses type Henley	No.	378		
L2.03	UG CABLING for POLE & EXTERNAL LIGHTS: 2.5mm ² 2C PVC SWA PVC U/G CU cable c/w appropriate cable glands & cable lugs.	LM	2170		
L2.04	TRENCHING: Trenching upto 600mm deep, cable laying, tiling, backfilling and compacting.	LM	2170		
L2.05	EARTHING (LIGHTS): Comprehensive earthing of every third pole comprising 6.0mm ² earth lead and 1200mm long 15mm Ø CU earth electrode with a driving tip and clamp and a 300 x 300mm concrete manhole with a removable cover.	No.	42		
L2.06	Cable route markers	Item	1		
L2.07	Sub-Total c/f to External Lighting Installations Price Collection Page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
L3 External Light Fittings					
<i>Fittings Must be quoted for as Specified below.</i>					
L3.01	TYPE UD2: Contemporary Wall mounted Uplight & Downlight Floodlight for 2 x 42W TC-TEL. Body and frame shall be made of Die cast Aluminium with RAL9007 colour. This should be 200mm in Diameter and 450mm in Height, IP65 Rated, with gear integrated & frosted glass c/w all bulbs and accessories. This is as THORN CESAR 3	No.	27		
L3.02	TYPE X1: Wall washing Linear floodlight of 617mm Length with symmetric light distribution and glass enclosure. This should be IP65 rated. This should be as Thorn Corniche.	No.	20		
L3.03	TYPE SL: Aluminium Bodied Conical lantern for post top mounting with clear bowl and stainless steel slotted lamp shield as THORN AVENUE XL c/w 40W LED LAMP. This should come complete with 3.5m Tapered 150mm diameter aluminium column with stainless steel finished sleeve and supplied for flange mounting as THORN AVENUE XL Column	No.	61		
L3.04	TYPE SB: Bollard Light which is elegant and vandal resistant with symmetric distribution of light c/w LED Lamps as THORN ADELIE BOLLARD	No.	18		
L3.05	TYPE FL: 100W LED Floodlights with high-purity aluminium reflector and heat sink, 5mm tempered glass cover and white LED light source. This shall be as THORN c/w all accessories.	No.	40		
L3.06	TYPE FLX: 100W LED Compact architectural floodlight combining high output LEDs of pre-defined beams offering complete flexibility. This should come c/w/ all accessories. This is as THORN COMNTRAST 2 LED MEDIUM	No.	30		
L3.07	Sub-Total c/f to External Lighting Installations Price Collection Page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

EXTERNAL LIGHTING INSTALLATIONS PRICE COLLECTION PAGE

L1	External Lighting Accessories	
L2	External Lighting Cabling	
L3	External Light Fittings	
L4	SUB-TOTAL c/f to EXTERNAL ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

M EXTERNAL ELECTRICAL & ICT DUCTWORK**M1 Power & ICT Duct work**

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	COST (Kshs.)
M1.01	EXCAVATIONS: Trenching upto 600mm deep, laying of sleeves, backfilling and compacting.	LM	1200		
M1.02	POWER MANHOLE COVERS: Steel Manhole Covers Manufactured under BS 497 & En-124 Standards c/w all Frame, Anchors and all other accessories. The steel Cover should be Rated as MEDIUM GAUGE (2500Kgs) should be engraved 'POWER'. This should be as EAFW	No.	65		
M1.03	SLEEVES (POWER): 200mm Diameter Heavy gauge PVC sleeves for power. Make as Metro	LM	800		
M1.04	SLEEVES (POWER): 150mm Diameter Heavy gauge PVC sleeves for power. Make as Metro	LM	4000		
M1.05	ICT MANHOLE COVERS: Steel Manhole Covers Manufactured under BS 497 & En-124 Standards c/w all Frame, Anchors and all other accessories. The steel Cover should be Rated as MEDIUM GAUGE (2500Kgs) should be engraved 'ICT'. This should be as EAFW	No.	65		
M1.06	SLEEVES (ICT): 100mm Diameter Heavy gauge PVC sleeves for ICT. Make as Metro	LM	2400		
M1.07	ROAD CROSSING DUCT: 9" Culvert / sleeves for road crossing for KPLC supply cables.	LM	120		
M1.08	SUB-TOTAL c/f to EXTERNAL ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE				

N ELECTRIC FENCE & ACCESSORIES

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
N1.01	<p>ENERGIZER PANEL with the following parameters:</p> <ul style="list-style-type: none"> • Panel to be as Gallagher model • Panel to have 4 Zones • Battery Backup for 24hrs in event of power failure • Should include Power on / off indicator lights • Should include Alarm indicator lights • 240V, 50Hz Ac input voltage • Reset options in event of correction of errors. 	No.	1		
N1.02	<p>CONTROLLER for ENERGIZER: Electric Fence Controller for the Energizer with the following parameters:</p>	No.	1		
N1.03	<p>FENCE MONITOR: Electric Fence Monitor linked to the energizer for monitoring the zones</p>	No.	4		
N1.04	<p>STRANDS: Perimeter wiring using 21 No. Parallel wires on 2.5 meter pole c/w all accessories including "Danger/Hatari" warning signs at 5 meter intervals. Strands Should be spaced at 100mm Intervals maximum</p>	LM	50		
N1.05	<p>STRANDS: Perimeter wiring using 8 No. Parallel wires on 1 meter pole c/w all accessories including "Danger/Hatari" warning signs at 5 meter intervals. Strands Should be spaced at 100mm Intervals maximum</p>	LM	1480		
N1.06	<p>RAZOR WIRE: Perimeter Razor wire Incorporated within the strands of the electric fence c/w all accessories</p>	LM	50		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
N1.07	FLEXIBLE LINKS: Allow for electric fence flex cable links for main gate and all necessary accessories for the same.	LM	50		
N1.08	SIREN & FLASHER: Siren and Flasher unit for above system mounted on 1m pole on top of gate house.	No.	1		
N1.09	POWER SUPPLY: Power supply to electric fence and linking to security alarm system.	No.	1		
N1.10	EARTHING: Earthing for above system.	Item	1		
N1.11	TESTING & COMMISSIONING: Allow sum for testing and commissioning	Item	1		
N1.12	SUB-TOTAL c/f to EXTERNAL ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE				

O EXTERNAL ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE

ITEM	DESCRIPTION	TOTAL (KShs).
O1	GATE HOUSES INSTALLATIONS	
O2	EXTERNAL LIGHTING INSTALLATIONS	
O3	EXTERNAL ELECTRICAL & ICT DUCTWORK	
O4	ELECTRIC FENCE & ACCESSORIES	
O5	Contingency	2,000,000
O6	TOTAL c/f to ELECTRICAL INSTALLATIONS PRICE SUMMARY PAGE	

**POWER CENTER
ELECTRICAL
INSTALLATIONS**

MAIN SWITCHGEAR & SUBMANS CABLING INSTALLATIONS**P HV SWITCHGEAR****P1 RING MAIN UNIT**

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
P1.01	<p>RING MAIN UNIT as per schematic drawing</p> <p>One off 3 panel ringmaster , SF6 insulated, indoor/outdoor, non-isolatable, extensible pattern, metalclad switchboard, suitable for use on an 11 kV, 3 phase, 3 wire, 50 Hz, earthed neutral system with an impulse level of 95 kV and fault rating of 21 kA for 3 seconds.</p> <p>Supplier's Must Warranty for the panel to be at least 5 Years from date of commissioning or 5½ years from date of Delivery</p> <p>The panels being equipped with HV cable boxes suitable for accepting cables from below and comprising of:</p> <p>SF6, 3 PANEL BY SCHNEIDER</p>	No.	1		
P1.02	<p>INCOMING:</p> <ul style="list-style-type: none"> • Quantity : 1 • Rated current : 630A • Rated Voltage : 13.8Kv • Impulse level : 95KV • Type : Metalclad • Extensible pattern : Yes • Breaking Current : 21kA • Peak making current : 52.5kA • Short time withstand (3 sec) : 21kA • Cable earth switch (3 sec) : 21kA • Insulating/breaking medium : SF6 • Internal arc- gas enclosure (1sec) : 21kA • Busbar rating : 630A • Environment : Indoor / Outdoor • IP rating : IP54 • Operating mechanism : Independent manual • Indication : Mechanical ON/OFF • Mechanical Mains / Earth • Gas Pressure • Auxiliary Contacts : 1 NC / 1 NO • Test Facility : Intergral Cable Test Facility • Cable entry : Bottom entry up to 300mm Sq 				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
	<ul style="list-style-type: none"> • Accessories : Operating handle • Protection and Control • IDMT overcurrent and earth fault via , self powered VIP 300 relay, with setting range. • O/C : 20A-250A • EF : 20A-128A • Shunt Trip coil : 20V DC-250V AC • Protection current transformers : 200/1A class X • Metering Current Transformers : 200/100/5A 10VA; Class 0.5 (Red and Blue Phases) • Metering Voltage Transformer (Ph-Ph) : 11kV/110V, 50VA; Class 0.5 (Phase-Phase) • Meter : PM810 				
P1.03	<p>TRANSFORMER FEEDER:</p> <ul style="list-style-type: none"> • Quantity : 2 • Rated current : 300A • Rated Voltage : 13.8Kv • Impulse level : 95KV • Type : Metalclad • Extensible pattern : Yes • Breaking Current : 21kA • Peak making current : 52.5kA • Short time withstand (3 sec) : 21kA • Cable earth switch (3 sec) : 21kA • Insulating/breaking medium : SF6 • Internal arc- gas enclosure (1sec) : 21kA • Busbar rating : 630A • Environment : Indoor / Outdoor • IP rating : IP54 • Operating mechanism : independent manual • Indication : Mechanical ON/OFF • Auxiliary Contacts : 1 NC / 1NO • Test Facility : Intergarl Cable Test Facility • Cable entry : Bottom entry up to 300mm sq • Accessories: Operating handle • Protection and Control • IDMT overcurrent and earth fault via , self powered VIP 300 relay, with setting range. • Shunt Trip coil : 20V DC-250V AC • Protection current transformers : 200/1A class X 				
P1.04	<p>Sub -Total c/f to HV Switchgear PRICE SUMMARY PAGE</p>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

P2 11KV SEC. HIGH VOTAGE TRANSFORMER ISOLATOR

P2.01	<p>TRANSFORMER ISOLATOR as per schematic drawing</p> <p>11KV SECONDARY HIGH VOTAGE TRANSFORMER ISOLATOR. This should be as SF6 insulated, indoor/outdoor, non-isolatable, extensible pattern, metalclad switchboard, suitable for use on an 11 kV, 3 phase, 3 wire, 50 Hz, earthed neutral system with an impulse level of 95 kV and fault rating of 21 kA for 3 seconds as Merlin Gerlin</p> <p>Supplier's Must Warranty for the panel to be at least 5 Years from date of commissioning or 5½ years from date of Delivery</p> <p>The panels being equipped with HV cable boxes suitable for accepting cables from below and comprising of:</p>	No.	1		
P2.01	<p>SPECIFICATIONS</p> <ul style="list-style-type: none"> • Quantity : 1 • Rated current : 200A • Rated Voltage : 13.8Kv • Impulse level : 95KV • Type : Metalclad • Extensible pattern : Yes • Breaking Current : 21kA • Peak making current : 52.5kA • Short time withstand (3 sec) : 21kA • Cable earth switch (3 sec) : 21kA • Insulating/breaking medium : SF6 • Internal arc- gas enclosure (1sec) : 21kA • Busbar rating : 300A 				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
	<ul style="list-style-type: none"> • Environment : Indoor / Outdoor • IP rating : IP54 • Operating mechanism : Independent manual • Indication : Mechanical ON/OFF • Mechanical Mains / Earth • Gas Pressure • Auxiliary Contacts : 1 NC / 1 NO • Test Facility : Intergral Cable Test Facility • Cable entry : Bottom entry up to 300mm Sq • Accessories : Operating handle • Protection and Control • IDMT overcurrent and earth fault via , self powered VIP 300 relay, with setting range. • O/C : 20A-250A • EF : 20A-128A • Shunt Trip coil : 20V DC-250V AC • Protection current transformers : 200/1A class X • Metering Current Transformers : 200/100/5A 10VA; Class 0.5 (Red and Blue Phases) • Metering Voltage Transformer (Ph-Ph) : 11kV/110V, 50VA; Class 0.5 (Phase-Phase) • Meter : PM810 				
P2.02	Sub -Total for c/f to HV Switchgear PRICE COLLECTION PAGE				

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

P3 TRANSFORMER (11/0.433KV) CAST RESIN DISTRIBUTION TRANSFORMERS

P3.01	<p>TRANSFORMER(S): Three -phase Transformer as TRIHAL cast resin HV/LV distribution transformers with class F insulation c/w proof of certification E2, C2, F1 according to the European standards HD 538-1 S1 and HD 464 S1</p> <p>Transformer should be in compliance with IEC 60076-1 to 60076-5 standards for power transformers.</p> <p>Transformer should also be manufactured in accordance with a quality system in conformity with ISO 9001 as well as an environmental management system in conformity with Iso 14001, both certified by an official independent organisation.</p> <p><u>Electrical Properties:</u></p> <ul style="list-style-type: none"> • Rating : 1500 KVA • Phases : Three Phase (Double Wound) • Frequency Hz.: 50 Hertz • HV Winding : 11,000 Volts • LV Winding : 433 Volts (No load) • HV Insulation Level : 12 kV • Power frequency : 28 kV r.m.s • Basic Impulse Level 1.2/50hs : 75 kV Peak • Impedance - % at 75°C : 6 % • HV Tappings : ± 2.5% and ± 5.0% 	No.	1		
--------------	---	-----	---	--	--

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
	<ul style="list-style-type: none"> • Tapping Selection : By externally operated "off circuit switch" • Average Daily Temperature : 30° C • Max. Ambient Temperature : 40° C • HV/LV Connections : Delta / Star N. pt • B.S. Vector Symbol : Dyn 11 • Temperature Rise °C : 100 K • Type: Indoor : Ground Mounted. • Noise Level : dB(A) 70 • Acoustic Pressure LPA : At 1m dB 57 • Lifting lugs and jacking Lugs : Rating and Connection plate • Earthing terminal : Base skids drilled for roller axes <p><u>Conditions of Use:</u></p> <ul style="list-style-type: none"> • Altitude lower than 1000 m • Maximum ambient temperature : 40° C • Average daily temperature : 30° C • Average yearly temperature : 20° C • Windings temperature rise : 100 K • Electrostatic screen : No • Six-phase rectifier supply : No <p><u>Accessories:</u></p> <ul style="list-style-type: none"> • 4 flat bi-directional rollers • 4 lifting lugs • Haulage holes on the underbase • 1 earthing terminal • 1 rating place (HV side) • 2No. "Danger Electricity" warning label (T 10 warning) • Tapping through off-circuit bolted links, acting on the highest voltage adapting the transformer to the real supply voltage value • 1No. routine tests certificate and 1No. instruction manual for installation, commissioning and maintenance in English 				

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
	<p><u>Enclosure:</u></p> <ul style="list-style-type: none"> • IP 31 metal enclosure (except the base which may be IP 21) • Tint (colour RAL 9002) • Cooling: Air natural cooling (AN type) <p><u>Thermal protection:</u></p> <ul style="list-style-type: none"> • 2 sets of 3 PTC sensors (2 per phase - alarm and trip) • 1 Z electronic converter with 3 contacts (fan initiation, alarm and trip) • Power Supply : 24 to 240V AC/DC • HV Connections:- HV upward pointing risers, for bolting on top of connections • LV Connections : by upward pointing risers, for bolting on top of connections. <p>Supplier's Must Warranty The Transformers 5 Years from date of commissioning or 5½ years from date of Delivery</p>				
P3.02	Sub -Total for c/f to HV Switchgear PRICE COLLECTION PAGE				-

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	----------------	-------------

HV SWITCHGEAR PRICE COLLECTION PAGE

P1	RING MAIN UNIT	
P2	11KV SEC. HIGH VOTAGE TRANSFORMER ISOLATOR	
P3	TRANSFORMER (11/0.433KV) CAST RESIN DISTRIBUTION TRANSFORMERS	
P4	Sub -Total c/f to MAIN SWITCHGEAR & SUBMAINS CABLING INSTALLATIONS PRICE SUMMARY PAGE	

Q LV SWITCHGEAR

Q1 MAINS & GENERATOR SUPPLY CHANGEOVER LV PANEL

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
Q1.01	<p>MAINS & GENERATOR SUPPLY CHANGEOVER LV PANEL as per schematic drawing</p> <p>FREE STANDING PANEL, Type Tested assembly (TTA),, modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 3b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Mains available & Mains on Load, Generator available & Generator on load, Disaster Recovery available, Disaster Recovery on Load.</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Mains available & Mains on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	No.	1		
Q1.02	MAINS Incomer				
a	2000Amp 4P ACB (DRAWOUT & ADJUSTABLE) with adjustable overcurrent settings, having a short circuit breaking capacity of 80KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
Q1.03	STABILIZER BYPASS				
	Supply & Install a Manual by-pass to the Voltage Stabilizer in-built within the LV Panel with the following mechanism:-	No.	1		
a	1No.2000Amp 4P ACB (DRAWOUT & ADJUSTABLE) as the incomer to the the Voltage Stabiliser.	No.	1		
b	2 No. 2000Amp 4P ACB (DRAWOUT & ADJUSTABLE) with Mechanical (Key) Interlock as bypass switch	Item.	1		
Q1.04	GENERATOR Incomer				
a	2000Amp 4P ACB (DRAWOUT & ADJUSTABLE) with adjustable overcurrent settings, having a short circuit breaking capacity of 80KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		
Q1.05	Busbars - Mains				
a	3000A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		
Q1.06	Busbars - Generator				
a	3000A TPN rated busbars with a provision for future expansion.	Item.	1		
b	Neutral link bar and earth bar	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
Q1.07	CHANGEOVER OPERATION				
	<p>The Mains To Generator Changeovers should have a sequence of Start up with a 3 Second delay between each changeover to control huge start up load on the generator. This should be by Control through a PLC. The sequence in order of priority should be as follows:</p> <p>Cold Rooms Changeover</p> <p>Warehouse Changeover</p> <p>Office Block Changeover</p> <p>Existing Warehouse Changeover</p> <p>Pump Systems Changeover</p> <p>Others</p>				
Q1.08 CHANGEOVER 01 (Mains to Generator) - COLD ROOMS					
	<p>The MFP should be such that in event of mains power outage, it picks up available supply from the generator selector panel.</p> <p>Supply & Install a set of motorised automatic mains & generator changeover. This should comprise of:-</p>	No.	1		
a	630 Amps 3P mechanically interlocked motorised MCCB's (ADJUSTABLE) and associated PLC, with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	Item.	1		
b	Supply & install control unit for auto-changeover Type UA-1 or equivalent.	Item.	1		
c	Supply & install under/over voltage sensing relay.	Item.	1		
d	Supply and Install set of indication to show Mains supply Available / In use or generator supply Available / In use.	Item.	1		
e	Supply and Install set of voltage free normally open/closed contacts for generator start/stop signal.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

Q1.09 CHANGEOVER 02 (Mains to Generator) - WAREHOUSE

	<p>The MFP should be such that in event of mains power outage, it picks up available supply from the generator selector panel.</p> <p>Supply & Install a set of motorised automatic mains & generator changeover. This should comprise of:-</p>	No.	1		
a	1000 Amps 3P mechanically interlocked motorised MCCB's (ADJUSTABLE) and associated PLC, with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	Item.	1		
b	Supply & install control unit for auto-changeover Type UA-1 or equivalent.	Item.	1		
c	Supply & install under/over voltage sensing relay.	Item.	1		
d	Supply and Install set of indication to show Mains supply Available / In use or generator supply Available / In use.	Item.	1		
e	Supply and Install set of voltage free normally open/closed contacts for generator start/stop signal.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
Q1.10 CHANGEOVER 03 (Mains to Generator) - OFFICE BLOCK					
	<p>The MFP should be such that in event of mains power outage, it picks up available supply from the generator selector panel.</p> <p>Supply & Install a set of motorised automatic mains & generator changeover. This should comprise of:-</p>	No.	1		
a	1000 Amps 3P mechanically interlocked motorised MCCB's (ADJUSTABLE) and associated PLC, with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	Item.	1		
b	Supply & install control unit for auto-changeover Type UA-1 or equivalent.	Item.	1		
c	Supply & install under/over voltage sensing relay.	Item.	1		
d	Supply and Install set of indication to show Mains supply Available / In use or generator supply Available / In use.	Item.	1		
e	Supply and Install set of voltage free normally open/closed contacts for generator start/stop signal.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

Q1.11 CHANGEOVER 04 (Mains to Generator) - PUMP SYSTEMS

	<p>The MFP should be such that in event of mains power outage, it picks up available supply from the generator selector panel.</p> <p>Supply & Install a set of motorised automatic mains & generator changeover. This should comprise of:-</p>	No.	1		
a	315Amps 3P mechanically interlocked motorised MCCB's (ADJUSTABLE) and associated PLC, with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	Item.	1		
b	Supply & install control unit for auto-changeover Type UA-1 or equivalent.	Item.	1		
c	Supply & install under/over voltage sensing relay.	Item.	1		
d	Supply and Install set of indication to show Mains supply Available / In use or generator supply Available / In use.	Item.	1		
e	Supply and Install set of voltage free normally open/closed contacts for generator start/stop signal.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

Q1.12 CHANGEOVER 05 (Mains to Generator) - EXISTING WAREHOUSE

	The MFP should be such that in event of mains power outage, it picks up available supply from the generator selector panel. Supply & Install a set of motorised automatic mains & generator changeover. This should comprise of:-	No.	1		
a	630Amps 3P mechanically interlocked motorised MCCB's (ADJUSTABLE) and associated PLC, with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	Item.	1		
b	Supply & install control unit for auto-changeover Type UA-1 or equivalent.	Item.	1		
c	Supply & install under/over voltage sensing relay.	Item.	1		
d	Supply and Install set of indication to show Mains supply Available / In use or generator supply Available / In use.	Item.	1		
e	Supply and Install set of voltage free normally open/closed contacts for generator start/stop signal.	Item.	1		

Q1.13 CHANGEOVER (Mains to Generator) - SPAREWAYS

a	Blanked Spareways for Future Generator Changeover Systems As above. This is for 630A 3P	Item.	2		
---	---	-------	---	--	--

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
Q1.14	OUTGOERS				
a	1000Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	3		
b	630Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	2		
c	315Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
d	Spareways (Blanked) for upto 800Amp 3P MCCB	No.	2		
Q1.15	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

Q2 POWER FACTOR CORRECTION (PFC) UNIT

Q2.01	<p>450KVar PFC for the Incoming Mains Line as per schematic drawing</p> <p>The PFC should be free standing, TTA, modular, extensible, metal clad, cubicle pattern to IP42 rating.</p> <p>The PFC should comprise of also a termination point for connection of remote signals.</p> <p>MUST be BMS compatible and the interphase module(s) for BACNET link incorporated to monitor all parameters.</p> <p>The PFC Should have the following steps:</p>		1		
Q2.02	100KVar	No.	2		
Q2.03	50KVar	No.	3		
Q2.04	20KVar	No.	3		
Q2.05	10KVar	No.	2		
Q2.06	5KVar	No.	4		
Q2.07	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

Q3 PUMPS SYSTEMS LV PANEL

Q3.01	<p>PUMPS SYSTEMS LV PANEL as per schematic drawing</p> <p>FREE STANDING PANEL, Type Tested assembly (TTA), modular, extensible, metal clad, cubicle pattern to IP42 rating and of Form 3b separation.</p> <p>The sub-board should comprise of a termination point for connection of remote signals for Supply available & Supply on Load</p> <p>MUST be BMS compatible and the interphase module(s) for MODBUS (RTU) link incorporated to monitor as a minimum the following: Supply Available & Supply on Load, voltage, current, kW, kWh, KVA, power factor etc.</p> <p>The sub-board should comprise the following switchgear:</p>	No.	1		
Q3.02	Main Incomer				
a	315Amp 3P MCCB (ADJUSTABLE) with adjustable overcurrent settings, having a short circuit breaking capacity of 80KA at 415Vac, 50Hz.	No.	1		
b	Supply and Install a Set of digital energy multimeter (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc.	Item.	1		
Q3.03	Busbars				
a	400A TPN rated busbars with a provision for future expansion.	Item.	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
b	Neutral link bar and earth bar	Item.	1		
Q3.04 OUTGOERS					
a	160Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	2		
b	20Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
c	10Amp 3P MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	4		
d	20Amp DP MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	1		
e	10Amp DP MCCB's with adjustable overcurrent settings, having a short circuit breaking capacity of 50KA at 415Vac, 50Hz.	No.	2		
f	Spareways for upto 63Amp 3P MCCB	No.	5		
Q3.05	Sub -Total for c/f to LV SWITCHGEAR PRICE COLLECTION PAGE				

Kindly give approximate dimensions of Panel above (L x W x H):

Length =

Width =

Height =

Weight =

ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs)	COST (Kshs)
------	-------------	------	-----	-------------	-------------

LV SWITCHGEAR PRICE COLLECTION PAGE

ITEM	DESCRIPTION	COST (Kshs.)
Q1	MAINS & GENERATOR SUPPLY CHANGEOVER LV PANEL	
Q2	POWER FACTOR CORRECTION (PFC) UNIT	
Q3	PUMPS SYSTEMS LV PANEL	
Q4	PC SUM - MCC for Cold Rooms Equipment as Per Specialists Specifications	3,500,000
Q5	Sub -Total c/f to MAIN SWITCHGEAR & SUBMAINS CABLING INSTALLATIONS PRICE SUMMARY PAGE	

R MAIN SWITCHGEAR - SUBMAINS CABLING & SYSTEMS EARTHING

All cables to distribution boards should be XLPE CU cables and this should be catered for in the rates.

All cables with Multiple runs have their measurements catered for in the quantities. Rate should be for single Run only

Colour code for 3-phase system cabling should be: Red for red phase, Yellow for yellow Phase, Blue for blue phase, Black for Neutral & Yellow/Green for Earth cables.

All HT Cabling to be as Elsewedy Cables

All LV Cabling to be as East African Cables

All cables Labelling tags shall be as Legrand and should be done on both ends

R1 MAIN SWITCHGEAR SUBMAINS CABLING

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
	<u>HT CABLING</u>				
R1.01	HT METER to RMU: 95mm sq 3C 11KV XLPE cable c/w terminations and all necessary accessories.	LM	50		
R1.02	RMU to TRANSFORMER ISOLATOR: 95mm sq 3C 11KV XLPE cable c/w terminations and all necessary accessories.	LM	150		
R1.03	ISOLATOR to TRANSFORMER: 95mm sq 3C 11KV XLPE cable c/w terminations and all necessary accessories.	LM	20		

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

R2 LV CABLING

R1.04	TRANSFORMER to MAINS & GENERATOR SUPPLY CHANGEOVER LV PANEL: 500mm sq PVC SC XPLE CU Cables. (Wired in 3 runs / phase + 2 runs of Neutral)	LM	480		
R1.05	Cable glands for above cables	No.	24		
R1.06	Cable lugs for for above cables	No.	24		
R1.07	PFC to MAINS & GENERATOR CHANGEOVER LV PANEL: 300mm sq PVC SC XPLE CU Cables. (Wired in 2 runs / phase + 2 runs of Neutral)	LM	120		
R1.08	Cable glands for above cables	No.	16		
R1.09	Cable lugs for for above cables	No.	16		
R1.10	MAINS & GENERATOR CHANGEOVER LV PANEL to PUMP SYSTEMS LV PANEL: 150mm ² 4-Core PVC SWA PVC CU Cable (Wired in 3 runs)	LM	600		
R1.11	Cable glands for above cables	No.	6		
R1.12	Cable lugs for for above cables	No.	24		
R1.13	MAINS & GENERATOR CHANGEOVER LV PANEL to EXISTING WAREHOUSE LV PANEL: 630mm sq PVC SC XPLE CU Cables. (Wired in 1 runs / phase + 1 runs of Neutral)	LM	1400		
R1.14	Cable glands for above cables	No.	8		
R1.15	Cable lugs for for above cables	No.	8		

ACCESSORIES

R1.16	LABELLING: Labelling of Cables and final sub-circuits. Labelling should be done in red Traffolytte labels properly anchored on the specific devices. As Legrand	Item	1		
R1.17	TOTAL c/f to MAIN SWITCHGEAR - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

R2 MAIN SWITCHGEAR SYSTEMS EARTHING

Pricing to include earth treatment where required using appropriate compounds such as Bentonite and marconite to achieve stipulated impedance. Under no circumstance should charcoal or common salt be used. **NOTE: Manufacturers Proof will be required**

All cables with Multiple runs have their measurements catered for in the quantities. Rate should be for single Run only

All earthing Cables Colour code shall be Yellow/Green or Green Except for Bare conductors

All earth Inspection chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'. This should be as Furse

All cables Labelling tags shall be as Legrand

HT ROOM EARTHING:

R2.01	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
R2.02	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
R2.03	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	2		
R2.04	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	40		
R2.05	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	120		

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
<u>TRANSFORMER ROOM EARTHING:</u>					
R2.06	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
R2.07	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
R2.08	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	2		
R2.09	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	40		
R2.10	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	120		

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
<u>GENERATOR ROOM EARTHING:</u>					
R2.11	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
R2.12	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
R2.13	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	1		
R2.14	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	40		
R2.15	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	180		

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
<u>LV ROOM & STABILIZER ROOM EARTHING:</u>					
R2.16	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
R2.17	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
R2.18	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	2		
R2.19	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	80		
R2.20	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 500mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	250		

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
<u>PUMP SYSTEMS EARTHING:</u>					
R2.21	EARTH MATT: Supply & Install Earthing Matt for Body Earthing of Switchgear complete with a copper lattice matt measuring 1000mm X 1000mm constructed with copper tapes measuring 25mm X 3mm (total length of each matt will be 15M) adjacent to switchgear rooms. This should be extended to the Concrete inspection chamber with appropriate Cable / CU rod.	No.	1		
R2.22	EARTH INSPECTION PIT: 300mm x 300mm Concrete Inspection Chamber clearly marked "EARTH"	No.	1		
R2.23	COPPER BAR: Supply & Install a Earth Potential Copper Bar measuring 600m long X 50mm Wide X 6mm Thick, mounted on insulators in room(s)	No.	2		
R2.24	PIT - EARTH BAR CONNECTION CABLE: Connect the copper lattice matt through the Inspection Chamber and the Earth potential Copper bar in Equipment room SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 70mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	40		
R2.25	EARTH BAR - EQUIPMENT CABLING: Connect the Earth potential Bar and Equipment with SC CU cable c/w appropriate cable lugs, cable lugs & any other accessories required. Cable size as 70mm sq PVC SC XPLE CU Cables (wired in 2 runs)	LM	150		

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
<u>EQUIPOTENTIAL CONDUCTORS</u>					
R2.26	BONDING BARE CONDUCTORS: Bare Conductors buried in the ground to bond all earth pits to ensure equipotential between the earth systems. Cable size as 150mm sq SC CU Cables (wired in 2 runs)	LM	1015		
<u>ACCESSORIES</u>					
R2.27	Supply and install 11mm cable markers for on both ends of the cables above.	Item.	1		
R2.28	Allow for cable ties for fastening all the above cables at every 300mm interval	Item.	1		
R2.29	TOTAL c/f to MAIN SWITCHGEAR - SUBMAINS CABLING & SYSTEMS EARTHING PRICE COLLECTION PAGE				

ITEM	DESCRIPTION	UNIT	Qty	RATE (Kshs.)	COST (Kshs.)
------	-------------	------	-----	-----------------	--------------

**MAIN SWITCHGEAR - SUBMAINS CABLING & SYSTEMS
EARTHING PRICE COLLECTION PAGE**

R1	MAIN SWITCHGEAR SUBMAINS CABLING	
R2	MAIN SWITCHGEAR SYSTEMS EARTHING	
R3	Sub -Total c/f to MAIN SWITCHGEAR & SUBMAINS CABLING INSTALLATIONS PRICE SUMMARY PAGE	

**ELECTRICAL
INSTALLATIONS
SUMMARY**

ELECTRICAL INSTALLATIONS PRICE SUMMARY**PAGE**

ITEM	DESCRIPTION	TOTAL (KShs).
T1	WAREHOUSE INSTALLATIONS	
T2	OFFICE BLOCK INSTALLATIONS	
T3	EXTERNAL ELECTRICAL INSTALLATIONS	
T4	MAIN SWITCHGEAR & SUBMAINS CABLING INSTALLATIONS	
T5	Preliminaries and General Conditions	Item
T6	DEMOLITIONS: Allow sum for demolitions of the existing services / installations. This comprise all the associated installations with the compound. The compound currently has a single storey premises which is being used as an office. The bidders are requested to give credit for carrying any re-usable material from site.	Item
T7	SIGNAGE: Allow sum for putting Up signage as required by the International safety standards	Item
T8	ATTENDANCE & LIAISON: Allow sum for attendance to other specialists, Contractors & Management team e.g. Security, Building management, Client, BMS, etc.	Item
T9	KPLC LIAISON: Allow sum for Liaison with KPLC for permanent Power Connection for entire premises.	Item
T10	POWER COMPANY LIAISON: Allow sum for attendance to other specialists e.g. Electrical, Building management, Client, BMS, etc.	Item

ITEM	DESCRIPTION		TOTAL (KShs).
T11	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	
T12	TESTING & COMMISSIONING: Sum for Testing and commissioning of the entire installations Including HT, LV and Switchgear complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	Item	
T13	TRAINING: Sum for Training of client personel / users (At least 5No Staff for 1Week)	Item	
T14	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	
T15	TOTAL		
T16	Add: 16% VAT (Including all PC Sums & Contingencies)		
T17	TOTAL SUM Inclusive of VAT c/f to ELECTRICAL & FIRE ALARM PRICE SUMMARY PAGE		

FIRE ALARM

INSTALLATIONS

FIRE ALARM (ADDRESSABLE) SYSTEMS

FIRE ALARM INSTALLATIONS - ADDRESSABLE FIRE ALARM SYSTEM

- *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.*
- *The Fire alarm system should be able to accommodate additional detectors and mimic panels that will be installed by the office users in future.*
- *The Fire alarm system shall be an Addressable Fire Alarm system*
- *All Main Panels and Repeater panels shall be Network ready.*
- **Note:** *All systems quoted for MUST meet the minimum threshold outlined in the technical specifications*
- **NB:** *Technical product Catalogues of the specified models should be attached as part of the Bid document.*
- *Models shall be as Bosch, Menvier, Protec, GE, EST. Any other must be approved by the Engineer.*
- **NOTE:** *Kindly Note that all Bidders Will be required to give the Authorization Letter from the Local Authorized agent for Fire Alarm. This will be Mandatory in the Evaluation.*

U1 WAREHOUSE FIRE ALARM INSTALLATIONS

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U1.01	<p>FIRE ALARM PANEL 4-LOOP : Addressable fire control panel as described in the particular specifications of this document. Special considerations to be made for this installation are:</p> <p>a Panel should be able to Loop & Communicate with all the other panels in the Premises</p> <p>b The panel should be able to control all fire alarm devices. If not then include mimic panels in the quotation and specify in the section for "any additional items" below</p> <p>c The panel should be compatible with the fire escape pressurization fans to enable trigger the fans whenever a signal for fire is detected.</p> <p>d The panel should be compatible with Lifts & Security devices e.g. Access Control, CCTV & Other Systems in the building for ease of management.</p>	No.	1		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
	<p>e The panel should be c/w an inbuilt integral Printer</p> <p>f The panel should be Network Ready</p> <p>g The panel should be BMS "BACNet IP " compatible and should be supplied with the interface port fitted plus any necessary software & programming necessary.</p> <p>h Panel should be able to cater for All the devices listed below with an additional 20%</p>				
U1.02	<p>REPEATER PANEL (GATE HOUSE's & SECURITY ROOM): Addressable repeater panel for the floor linked to the main panels described in the particular specifications of this document. Special considerations to be made for this installation are:</p> <p>a The panel should be BMS "BACNet IP " compatible and should be supplied with the interface port fitted.</p>	No.	2		
U1.03	<p>SMOKE DETECTORS (PHOTOELECTRIC): Addressable Ionisation Smoke detector c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	106		
U1.04	<p>HEAT DETECTORS: Addressable Ionisation Heat detector c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	2		
U1.05	<p>STROBE LIGHT (CEILING MOUNT): Ceiling mounted Flasher strobe light c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	20		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U1.06	BEAM DETECTORS: Wall Mounted Beam Detectors c/w Bases and all other accessories as described in the particular specifications of this document	No.	28		
U1.07	BEAM RECIEVERS: Wall Mounted Beam Recievers c/w Bases and all other accessories as described in the particular specifications of this document	No.	28		
U1.08	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.	10		
U1.09	MANUAL CALL POINT (BREAKGLASS) - As TYPE 01 WITH HINGED COVER: 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.	10		
U1.10	CABLING: Wiring of fire alarm points using 1.5mm ² fire resistant cable as FIRETEC or FP200 as described in the particular specifications of this document	No.	206		
U1.11	INPUT / OUTPUT 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.	5		
U1.12	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		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U1.13	POWER SUPPLY: Sum for power supply to the various components that require energisation.	Item	1		
U1.14	PROGRAMMING, TESTING & COMMISSIONING: Programming, testing and commissioning of the entire system by the SUPPLIER specialist complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	Item	1		
U1.15	BMS INTERPHASE: Sum for providing interphase to BMS system via BACNet IP plus any necessary software & programming necessary.	Item	1		
U1.16	SIGNAGE: Allow sum for putting Up signage as required by the International safety standards	Item	1		
U1.17	LABELLING: Allow sum for putting permanent Labels on all installations including cabling as required	Item	1		
U1.18	INTEGRATION: Allow sum for Attencance & interlinking the system to other security & alarm panels installed by others.	Item	1		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U1.19	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		
U1.20	TRAINING: Sum for Training of client personel / users (At least 5No Staff for 1Week)	Item	1		
U1.21	TESTING & COMMISSIONING: Sum for Testing and commissioning of the entire installations set complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	Item	1		
U1.22	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		
U1.23	Preliminaries, contract conditions, general conditions & particular specifications	Item	1		
U1.24	<i>Any other additional items, please specify below and attach catalogues. (If none write NIL)</i>				
i)					
ii)					
iii)					
iv)					
U1.25	Contingency				800,000
U1.26	Sub-Total c/f to ADDRESSABLE FIRE ALARM SUMMARY PAGE				

U2 OFFICE BLOCK FIRE ALARM INSTALLATIONS

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U2.01	<p>FIRE ALARM PANEL 4-LOOP : Addressable fire control panel as described in the particular specifications of this document. Special considerations to be made for this installation are:</p> <p>a Panel should be able to Loop & Communicate with all the other panels in the Premises</p> <p>b The panel should be able to control all fire alarm devices. If not then include mimic panels in the quotation and specify in the section for "any additional items" below</p> <p>c The panel should be compatible with the fire escape pressurization fans to enable trigger the fans whenever a signal for fire is detected.</p> <p>d The panel should be compatible with Lifts & Security devices e.g. Access Control, CCTV & Other Systems in the building for ease of management.</p> <p>e The panel should be c/w an inbuilt integral Printer</p> <p>f The panel should be Network Ready</p> <p>g The panel should be BMS "BACNet IP " compatible and should be supplied with the interface port fitted plus any necessary software & programming necessary.</p> <p>h Panel should be able to cater for All the devices listed below with an additional 20%</p>	No.	1		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U2.02	<p>REPEATER PANEL (GATE HOUSE's & SECURITY ROOM): Addressable repeater panel for the floor linked to the main panels described in the particular specifications of this document. Special considerations to be made for this installation are:</p> <p>a The panel should be BMS "BACNet IP " compatible and should be supplied with the interface port fitted.</p>	No.	1		
U2.03	<p>SMOKE DETECTORS (PHOTOELECTRIC): Addressable Ionisation Smoke detector c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	365		
U2.04	<p>HEAT DETECTORS: Addressable Ionisation Heat detector c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	55		
U2.05	<p>OPTICAL HEAT DETECTORS: Addressable Ionisation Optical Heat detector c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	18		
U2.06	<p>STROBE LIGHT (CEILING MOUNT): Ceiling mounted Flasher strobe light c/w Bases and all other accessories as described in the particular specifications of this document</p>	No.	10		
U2.07	<p>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</p>	No.	70		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U2.08	MANUAL CALL POINT (BREAKGLASS) - As TYPE 01 WITH HINGED COVER: 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.	70		
U2.09	CABLING: Wiring of fire alarm points using 1.5mm ² fire resistant cable as FIRETEC or FP200 as described in the particular specifications of this document	No.	583		
U2.10	INPUT / OUTPUT 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.	5		
U2.11	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		
U2.12	POWER SUPPLY: Sum for power supply to the various components that require energisation.	Item	1		
U2.13	PROGRAMMING, TESTING & COMMISSIONING: Programming, testing and commissioning of the entire system by the SUPPLIER specialist complete with all accessories, interconnections, controls, BMS link & activation and the necessary programming.	Item	1		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U2.14	SIGNAGE: Allow sum for putting Up signage as required by the International safety standards	Item	1		
U2.15	LABELLING: Allow sum for putting permanent Labels on all installations including cabling as required	Item	1		
U2.16	INTEGRATION: Allow sum for Attenance & interlinking the system to other security & alarm panels installed by others.	Item	1		
U2.17	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	Item	1		
U2.18	TRAINING: Sum for Training of client personel / users (At least 5No Staff for 1Week)	Item	1		
U2.19	TESTING & COMMISSIONING: Sum for Testing and commissioning of the entire installations set complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	Item	1		
U2.20	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		
U2.21	Preliminaries, contract conditions, general conditions & particular specifications	Item	1		

Item	Description	Unit	QTY	RATE (Kshs.)	COST (Kshs.)
U2.22	Any other additional items, please specify below and attach catalogues. (If none write NIL)				
i)					
ii)					
iii)					
iv)					
U2.23	Contingency				650,000
U2.24	Sub-Total c/f to ADDRESSABLE FIRE ALARM SUMMARY PAGE				

ADDRESSABLE FIRE ALARM SUMMARY PAGE

ITEM	DESCRIPTION	COST (Kshs.)
U1	WAREHOUSE INSTALLATION	
U2	OFFICE BLOCK INSTALLATION	
U3	TOTAL	
U4	Add: 16% VAT (Including all PC Sums & Contingencies)	
U5	TOTAL SUM Inclusive of VAT c/f to ELECTRICAL & FIRE ALARM PRICE SUMMARY PAGE	

ELECTRICAL

&

FIRE ALARM

INSTALLATIONS

SUMMARY

ELECTRICAL & FIRE ALARM PRICE SUMMARY PAGE

ITEM	DESCRIPTION	COST (Kshs.)
V1	ELECTRICAL INSTALLATIONS	
V2	FIRE ALARM (ADDRESSABLE) SYSTEMS	
V3	TOTAL SUM Inclusive 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 _____