



# REPUBLIC OF KENYA

## STATE DEPARTMENT OF PUBLIC WORKS

PROPOSED ERECTION AND COMPLETION OF A WARD BLOCK AT  
MERU LEVEL 5 HOSPITAL (PHASE 1) AND ASSOCIATED ELECTRICAL,  
MECHANICAL AND EXTERNAL WORKS

W.P. ITEM NO. D108 /EN/ MRU 1601 - JOB NO. 0397F

### *TENDER SPECIFICATIONS*

*FOR*

### *ELECTRICAL INSTALLATION WORKS*

**PROJECT MANAGER**  
**WORKS SECRETARY**  
STATE DEPARTMENT OF PUBLIC WORKS  
P.O BOX 30743 – 00100  
NAIROBI

**CLIENT**  
**THE CHIEF OFFICER,**  
DEPARTMENT OF HEALTH  
P.O.BOX 120- 60200  
MERU

**ARCHITECT**  
**CHIEF ARCHITECT**  
STATE DEPARTMENT OF PUBLIC WORKS  
P.O BOX 30743 - 00100  
NAIROBI

**QUANTITY SURVEYOR**  
**CHIEF QUANTITY SURVEYOR**  
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P.O BOX 30743 - 00100  
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**ELECTRICAL ENGINEER**  
**CHIEF ENGINEER (ELECTRICAL)**  
STATE DEPARTMENT OF PUBLIC WORKS  
P.O BOX 41191- 00100  
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**MECHANICAL ENGINEER**  
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**STRUCTURAL ENGINEER**  
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P.O BOX 30743– 00100  
NAIROBI

**AUGUST, 2018**

## TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE</u>
Contents.....	i)
Definitions.....	ii)
Special Notes.....	(iii)
Form of Tender.....	(iv)
Form of Tender Security.....	(v) – (vi)
SECTION A: Instructions to Tenderers.....	A/1-A/22
SECTION B: Conditions of Contract and Sub-contract Agreement	
-PART I: Conditions of Contract (Main works).....	B/1-B/20
- PART II: Sub-Contract Agreement (KABCEC).....	1-21
SECTION C: Sub-Contract Preliminaries and Conditions.....	C/1-C/21
SECTION D: General Specifications of Materials and Works.....	D/1-D/19
SECTION E: Schedule of Contract Drawings.....	E/1
SECTION F: Particular Specifications of Materials and Works.....	F/1
SECTION G: Schedule of Unit Rates.....	G/1-G/2
SECTION H: Bills of Quantities.....	H/1-H/19
SECTION I: Technical Schedule of Items to be supplied.....	I/1-I/2
SECTION J: Standard Forms.....	J/1-J/19

## DEFINITIONS

The following terms and expressions used in the contract document shall have the following meanings:

<b>The Employer</b>	<b>County Government of Meru</b>
<b>Employer's representative</b>	The Chief Officer, Department of Health, P.O. Box 120-60200, <u>MERU.</u>
<b>The Project Manager</b>	Works Secretary, State Department of Public Works, P.O. Box 30743 – 00100, <u>NAIROBI.</u>
<b>Architect</b>	Chief Architect, State Department of Public Works, P.O. Box 30743 – 00100, <u>NAIROBI.</u>
<b>Engineer</b>	Chief Engineer (Electrical), State Department of Public Works, P.O. Box 41191 – 00100, <u>NAIROBI.</u>
<b>Quantity Surveyor</b>	Chief Quantity Surveyor. State Department of Public Works, P.O. Box 30743 – 00100, <u>NAIROBI.</u>
<b>Structural Engineer</b>	Chief Engineer (Structural), State Department of Public Works, P.O. Box 30743 – 00100. <u>NAIROBI.</u>
<b>Main contractor</b>	The firm appointed to carry out <b>Builders Works</b>
<b>Sub-contractor</b>	The firm appointed to carry out <b>Electrical Installation Works</b>
<b>Site</b>	The site for the proposed works is at <b>Meru Hospital - Meru Town, Meru County</b>

(ii)

## SPECIAL NOTES

1. These notes shall form part of the Instructions to Tenderers and Conditions of Contract.
2. The tenderer is required to check the number of pages in this document and should he find any missing, or in duplicate, or indistinct he should inform the **Chief Engineer-Electrical**, State Department of Public Works.
3. Should the tenderer be in any doubt about the precise meaning of any item or figure, for any reason whatsoever, he must inform the **Chief Engineer-Electrical**, State Department of Public Works, in order that the correct meaning may be decided before the date of submission of tender.
4. No liability will be admitted nor claim allowed, in respect of errors in the tender due to mistakes in the specification, which should have been rectified in the manner, described above.
5. All tenderers must make a declaration that they have not and will not make any payment to any person which can be perceived as an inducement to enable them to win this tender.

**FORM OF TENDER**

To: The Chief Officer,  
Department of Health,  
P.O. Box 120-60200,  
MERU.

**PROPOSED ERECTION AND COMPLETION OF A WARD BLOCK AT MERU LEVEL 5  
HOSPITAL (PHASE 1) AND ASSOCIATED ELECTRICAL, MECHANICAL AND EXTERNAL  
WORKS**

**W.P. ITEM NO. D108 /EN/ MRU 1601 - JOB NO. 0397F**

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**ELECTRICAL INSTALLATION WORKS**

1. In accordance with the Instructions to Tenderers, Conditions of Contract, 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 figures]*  
Kenya Shillings..... *[Amount in words]*

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Employer's Representative's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Conditions of Contract.
3. We agree to abide by this tender **for a period of 120 days from the date of tender opening**, and shall remain binding upon us and may be accepted at any time before the expiry of that period.
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this ..... day of .....20.....

Name.....Signature.....

in the capacity of.....  
duly authorized to sign tenders for and on behalf of:

.....*[Name of Tenderer]*

of.....*[Address of Tenderer]*

PIN No. ....

VAT CERTIFICATE No. ....

**Witness:** Name .....

Address .....

Signature .....

(iv)

**FORM OF TENDER SECURITY (BANK SECURITY)**

To: The Chief Officer,  
Department of Health,  
P.O. Box 120-60200,  
MERU.

WHEREAS.....(hereinafter called “the Tenderer”) has submitted his tender dated.....for the construction of .....  
.....(name of Contract)

KNOW ALL PEOPLE by these presents that WE.....having our registered office at .....(hereinafter called “the Bank”), are bound unto .....(hereinafter called “the Employer” in the sum of Kshs.....for which payment well and truly to be made to the said Employer, the Bank bind 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 after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers  
  
Or
2. If the tenderer, having been notified of the acceptance of this tender by the Employer during the period of tender validity:
  - a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, 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 Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force for **one hundred and fifty (150) days** from the date of tender opening, and any demand in respect thereof should reach the Bank not later than the said date.

\_\_\_\_\_  
[date]

\_\_\_\_\_  
[signature of the Bank]

\_\_\_\_\_  
[witness]

\_\_\_\_\_  
[seal]

**FORM OF TENDER SECURITY *(INSURANCE SECURITY)***

To: The Chief Officer,  
Department of Health,  
P.O. Box 120-60200,  
MERU.

WHEREAS.....(hereinafter called “the Tenderer”) has submitted his tender dated.....for the construction of  
.....  
.....  
.....(name of Contract)

KNOW ALL PEOPLE by these presents that WE..... of .....(Name of Insurance Company)...having our registered office at.....(hereinafter called “ the Guarantor”), are bound unto .....(hereinafter called “the Procuring Entity” in the sum of Kshs.....for which payment well and truly to be made to the said Procuring Entity , the Guarantor bind itself, its successors and assigns by these presents sealed with the Common Seal of the said Guarantor this .....Day of .....20.....

THE CONDITIONS of this obligation are:

1. If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers  
  
Or
2. If the tenderer, having been notified of the acceptance of this tender by the Employer during the period of tender validity:
  - a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, 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 Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force for a period of **one hundred and fifty (150) days** from the date of tender opening, and any demand in respect thereof should reach the Bank not later than the said date.

\_\_\_\_\_  
[date]

\_\_\_\_\_  
[signature of the Guarantor]

\_\_\_\_\_  
[witness]

\_\_\_\_\_  
[seal]



SECTION A

INSTRUCTIONS TO TENDERERS

# INSTRUCTIONS TO TENDERERS

## CONTENTS

<u>CLAUSE NUMBERS</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
<u>GENERAL</u>		
1.	Definitions .....	A-1
2.	Eligibility and Qualification Requirements .....	A-1-A-2
3.	Cost of Tendering .....	A-2
4.	Site Visit .....	A-2 -A-3
<u>TENDER DOCUMENTS</u>		
5.	Tender Documents .....	A-3
6.	Clarification of Tender Documents .....	A-4
7.	Amendments of Tender Documents .....	A-4
<u>PREPARATION OF TENDER</u>		
8.	Language of Tender .....	A-4
9.	Documents Comprising the Tender .....	A-4 - -5
10.	Tender Prices .....	A-5
11.	Currencies of Tender and Payment .....	A-6
12.	Tender Validity .....	A-6
13.	Tender Surety .....	A-6-A-7
14.	No Alternative Offers .....	A-7
15.	Pre-Tender Meeting.....	A-7- A-8
16.	Format and Signing of Tenders .....	A-8
<u>SUBMISSION OF TENDERS</u>		
17.	Sealing and Marking of Tenders .....	A-8
18.	Deadline and Submission of Tenders .....	A-9
19.	Modification and Withdrawal of Tenders .....	A-9
<u>TENDER OPENING AND EVALUATION</u>		
20.	Tender Opening .....	A-9
21.	Process to be Confidential .....	A-10
22.	Clarification of Tenders .....	A-10

<u>CLAUSE NUMBERS</u>	<u>PAGE</u>
23. Determination of Responsiveness .....	A-10
24. Correction of Errors .....	A-11
25. Conversion to Single Currency .....	A-11
26. Evaluation and Comparison of Tenders .....	A-12
 <u>AWARD OF CONTRACT</u>	
27. Award .....	A-12
28. Notification of Award .....	A-13
29. Performance Guarantee .....	A-13
30. Advance Payment .....	A-14
Appendix to Instructions to Tenderers .....	A-15
Tender Evaluation Criteria .....	A-16 – A-22

## INSTRUCTION TO TENDERERS

Note: The tenderer must comply with the following conditions and instructions and failure to do so is liable to result in rejection of the tender.

### GENERAL

#### 1. Definitions

- (a) **“Tenderer”** means any person or persons partnership firm or company submitting a sum or sums in the Bills of Quantities in accordance with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications, Drawings and Bills of Quantities for the work contemplated, acting directly or through a legally appointed representative.
- (b) **“Approved tenderer”** means the tenderer who is approved by the Employer.
- (c) Any noun or adjective derived from the word **“tender”** shall be read and construed to mean the corresponding form of the noun or adjective **“bid”**. Any conjugation of the verb **“tender”** shall be read and construed to mean the corresponding form of the verb **“bid.”**
- (d) **“Employer”** means a Central Government Ministry, Local Authority, State Corporation or any other Public Institution.

#### 2. Eligibility and Qualification Requirements

- 2.1 This invitation to tender is open to all tenderers who have been prequalified.
- 2.2 To be eligible for award of Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility under Sub clause 2.1 above and of their capability and adequacy of resources to effectively carry out the subject Contract. To this end, the tenderer shall be required to update the following information already submitted during prequalification:-
  - (a) Details of experience and past performance of the tenderer on the works of a similar nature within the past five years and details of current work on hand and other contractual commitments.
  - (b) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.
  - (c) Major items of construction plant and equipment proposed for use in carrying out the Contract. Only reliable plant in good working order and suitable for the work required of it shall be shown on this schedule. The tenderer will also indicate on this schedule when each item will be available on the Works. Included also should be a schedule of plant, equipment and material to be imported for the purpose of the Contract, giving details of make, type, origin and CIF value as appropriate.

- (d) Details of subcontractors to whom it is proposed to sublet any portion of the Contract and for whom authority will be requested for such subletting in accordance with clause 4 of the Conditions of Contract.
- (e) A draft Program of Works in the form of a bar chart and Schedule of Payment which shall form part of the Contract if the tender is accepted. Any change in the Program or Schedule shall be subjected to the approval of the Engineer.
- (f) Details of any current litigation or arbitration proceedings in which the Tenderer is involved as one of the parties.

### 2.3 Joint Ventures

Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements:-

- (a) The tender, and in case of a successful tender, the Form of Agreement, shall be signed so as to be legally binding on all partners.
- (b) One of the partners shall be nominated as being in charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners.
- (c) The partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the Contract including payment shall be done exclusively with the partner in charge.
- (d) All partners of the joint venture shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a relevant statement to this effect shall be included in the authorization mentioned under (b) above as well as in the Form of Tender and the Form of Agreement (in case of a successful tender).
- (e) A copy of the agreement entered into by the joint venture partners shall be submitted with the tender.

### 3. Cost of Tendering

The tenderer shall bear all costs associated with the preparation and submission of his tender and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

### 4. Site Visit

- 4.1 The tenderer is advised to visit and examine the Site and its surroundings and obtain for himself on his own responsibility, all information that may be necessary for preparing the tender and entering into a contract. The costs of visiting the Site shall be the tenderer's own responsibility.

- 4.2 The tenderer and any of his personnel or agents will be granted permission by the Employer to enter upon premises and lands for the purpose of such inspection, but only upon the express condition that the tenderer, his personnel or agents, will release and indemnify the Employer from and against all liability in respect of, and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused, which but for the exercise of such permission, would not have arisen.
- 4.3 The Employer shall organize a site visit at a date to be notified. A representative of the Employer will be available to meet the intending tenderers at the Site.

Tenderers must provide their own transport. The representative will not be available at any other time for site inspection visits.

Each tenderer shall complete the Certificate of Tenderer's Visit to the Site, whether he in fact visits the Site at the time of the organized site visit or by himself at some other time.

### TENDER DOCUMENTS

#### 5. Tender Documents

- 5.1 The Tender documents comprise the documents listed herebelow and should be read together with any Addenda issued in accordance with Clause 7 of these instructions to tenderers.
- a. Form of Invitation for Tenders
  - b. Instructions to Tenderers
  - c. Form of Tender
  - d. Appendix to Form of Tender
  - e. Form of Tender Surety
  - f. Statement of Foreign Currency Requirements
  - g. Form of Performance Security
  - h. Form of Agreement
  - i. Form of Advance payment Bank Guarantee
  - j. Schedules of Supplementary Information
  - k. General Conditions of Contract – Part I
  - l. Conditions of Particular Application – Part II
  - m. Specifications
  - n. Bills of Quantities
  - o. Drawings
- 5.2 The tenderer is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the tender documents. Failure to comply with the requirements for tender submission will be at the tenderer's own risk. Pursuant to clause 22 of Instructions to Tenderers, tenders which are not substantially responsive to the requirements of the tender documents will be rejected.
- 5.3 All recipients of the documents for the proposed Contract for the purpose of submitting a tender (whether they submit a tender or not) shall treat the details of the documents as "private and confidential".

6. Clarification of Tender Documents

- 6.1 A prospective tenderer requiring any clarification of the tender documents may notify the Employer in writing or by telex, cable or facsimile at the Employer's mailing address indicated in the Invitation to Tender. The Employer will respond in writing to any request for clarification which he receives earlier than 5 days prior to the expiry of 28 days deadline for the submission of tenders. Written copies of the Employer's response (including the query but without identifying the source of the inquiry) will be sent to all prospective tenderers who have purchased the tender documents.

7. Amendment of Tender Documents

- 7.1 At any time prior to the deadline for submission of tenders the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective tenderer, modify the tender documents by issuing Addenda.
- 7.2 Any Addendum will be notified in writing or by cable, telex or facsimile to all prospective tenderers who have purchased the tender documents and will be binding upon them.
- 7.3 If during the period of tendering, any circular letters (tender notices) shall be issued to tenderers by, or on behalf of, the Employer setting forth the interpretation to be placed on a part of the tender documents or to make any change in them, such circular letters will form part of the tender documents and it will be assumed that the tenderer has taken account of them in preparing his tender. The tenderer must promptly acknowledge any circular letters he may receive.
- 7.4 In order to allow prospective tenderers reasonable time in which to take the Addendum into account in preparing their tenders, the Employer may, at his discretion, extend the deadline for the submission of tenders.

PREPARATION OF TENDERS

8. Language of Tender

- 8.1 The tender and all correspondence and documents relating to the tender exchanged between the tenderer and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the tenderer with the tender may be in another language provided they are accompanied by an appropriate translation of pertinent passages in the above stated language. For the purpose of interpretation of the tender, the English language shall prevail.

9. Documents Comprising the Tender

- 9.1 The tender to be prepared by the tenderer shall comprise: the Form of Tender and Appendix thereto, a Tender Surety, the Priced Bills of Materials and Schedules, the information on eligibility and qualification, and any other materials required to be completed and submitted in accordance with the Instructions to Tenderers embodied in these tender documents.

The Forms, Bills of Quantities and Schedules provided in the tender documents shall be used without exception (subject to extensions of the schedules in the same format and to the provisions of clause 13.2 regarding the alternative forms of Tender Surety).

10. Tender Prices

10.1 All the insertions made by the tenderer shall be made in INK and the tenderer shall clearly form the figures. The relevant space in the Form of Tender and Bills of Quantities shall be completed accordingly without interlineations or erasures except those necessary to correct errors made by the tenderer in which case the erasures and interlineations shall be initialed by the person or persons signing the tender.

10.2 A price or rate shall be inserted by the tenderer for every item in the Bills of Quantities whether the quantities are stated or not items against which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bills of Quantities.

The prices and unit rates in the Bills of Quantities are to be the full [all-inclusive] value of the work described under the items, including all costs and expenses which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. All duties and taxes and other levies payable by the Contractor under the Contract or for any other cause as of the date 28 days prior to the deadline for the submission of tenders, shall be included in the rates and prices and the total tender prices submitted by the Tenderer.

Each price or unit rate inserted in the Bills of Quantities should be a realistic estimate for completing the activity or activities described under that particular item and the tenderer is advised against inserting a price or rate against any item contrary to this instruction.

Every rate entered in the Bills of Quantities, whether or not such rate be associated with a quantity, shall form part of the Contract. The Employer shall have the right to call for any item of work contained in the Bills of Quantities, and such items of work to be paid for at the rate entered by the tenderer and it is the intention of the Employer to take full advantage of unbalanced low rates.

10.3 Unless otherwise specified the tenderer must enter the amounts representing 10% of the sub-total of the summary of the Bills of Quantities for Contingencies and Variation of Prices [V.O.P.] payments in the summary sheet and add them to the sub-total to arrive at the tender amount.

10.4 The tenderer shall furnish with his tender written confirmation from his suppliers or manufacturers of unit rates for the supply of items listed in the Conditions of Contract clause 47 where appropriate.

10.5 The rates and prices quoted by the tenderer are subject to adjustment during the performance of the Contract only in accordance with the provisions of the Conditions of Contract. The tenderer shall complete the schedule of basic rates and shall submit with his tender such other supporting information as required under clause 47 of the Conditions of Contract Part II.



11. Currencies of Tender and Payment

- 11.1 Tenders shall be priced in Kenya Shillings and the tender sum shall be in Kenya Shillings.
- 11.2 Tenderers are required to indicate in the Statement of Foreign Currency Requirements, which forms part of the tender, the foreign currency required by them. Such currency should generally be the currency of the country of the tenderer's main office. However, if a substantial portion of the tenderer's expenditure under the Contract is expected to be in countries other than his country of origin, then he may state a corresponding portion of the contract price in the currency of those other countries. However, the foreign currency element is to be limited to two (2) different currencies and a maximum of 30% (thirty percent) of the Contract Price.
- 11.3 The rate of rates of exchange used for pricing the tender shall be selling rate or rates of the Central Bank ruling on the date thirty (30) days before the final date for the submission of tenders.
- 11.4 Tenderers must enclose with their tenders, a brief justification of the foreign currency requirements stated in their tenders.

12. Tender Validity

- 12.1 The tender shall remain valid and open for acceptance for a period of one hundred and twenty (120) days from the specified date of tender opening or from the extended date of tender opening (in accordance with clause 7.4 here above) whichever is the later.
- 12.2 In exceptional circumstances prior to expiry of the original tender validity period, the Employer may request the tenderer for a specified extension of the period of validity. The request and the responses thereto shall be made in writing or by cable, telex or facsimile. A tenderer may refuse the request without forfeiting his Tender Surety. A tenderer agreeing to the request will not be required nor permitted to modify his tender, but will be required to extend the validity of his Tender Surety correspondingly.

13. Tender Surety

- 13.1 The tenderer shall furnish as part of his tender, a Tender Surety in the amount stated in the Appendix to Instructions to Tenderers.
- 13.2 The unconditional Tender Surety shall be in Kenya Shillings and be in form of a certified cheque, a bank draft, an irrevocable letter of credit or a guarantee from a reputable Bank approved by the Employer located in the Republic of Kenya. The format of the Surety shall be in accordance with the sample form of Tender Surety included in these tender documents; other formats may be permitted subject to the prior approval of the Employer. The Tender Surety shall be valid for twenty eight (28) days beyond the tender validity period.

- 13.3 Any tender not accompanied by an acceptable Tender Surety will be rejected by the Employer as non-responsive.
- 13.4 The Tender Sureties of unsuccessful tenderers will be returned as promptly as possible but not later than twenty eight (28) days after concluding the Contract execution and after a Performance Security has been furnished by the successful tenderer. The Tender Surety of the successful tenderer will be returned upon the tenderer executing the Contract and furnishing the required Performance Security.
- 13.5 The Tender Surety may be forfeited:
- (a) if a tenderer withdraws his tender during the period of tender validity:  
or
  - (b) in the case of a successful tenderer, if he fails
    - (i) to sign the Agreement, or
    - (ii) to furnish the necessary Performance Security
  - (c) if a tenderer does not accept the correction of his tender price pursuant to clause 23.

14. No Alternative Offers

- 14.1 The tenderer shall submit an offer which complies fully with the requirements of the tender documents.

Only one tender may be submitted by each tenderer either by himself or as partner in a joint venture.

- 14.2 The tenderer shall not attach any conditions of his own to his tender. The tender price must be based on the tender documents. The tenderer is not required to present alternative construction options and he shall use without exception, the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price.

Any tenderer who fails to comply with this clause will be disqualified.

15. Pre-Tender Meeting

- 15.1 The tenderer's designated representative is invited to attend a pre-tender meeting, which if convened, will take place at the venue and time stated in the Invitation to Tender. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- 15.2 The tenderer is requested as far as possible to submit any questions in writing or by cable, to reach the Employer not later than seven days before the meeting. It may not be practicable at the meeting to answer questions received late, but questions and responses will be transmitted in accordance with the following:

- (a) Minutes of the meeting, including the text of the questions raised and the responses given together with any responses prepared after the meeting will be transmitted without delay to all purchasers of the tender documents. Any modification of the tender documents listed in – Clause 9 which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of a tender notice pursuant to Clause 7 and not through the minutes of the pre-tender meeting.
- (b) Non-attendance at the pre-tender meeting will not be cause for disqualification of a bidder.

16. Format and Signing of Tenders

- 16.1 The tenderer shall prepare his tender as outlined in clause 9 above and mark appropriately one set “ORIGINAL” and the other “COPY”.
- 16.2 The copy of the tender and Bills of Quantities 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. Proof of authorization shall be furnished in the form of the written power of attorney which shall accompany the tender. All pages of the tender where amendments have been made shall be initialed by the person or persons signing the tender.
- 16.3 The complete tender shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

SUBMISSION OF TENDERS

17. Sealing and Marking of Tenders

- 17.1 The tenderer shall seal the original and copy of the tender in separated envelopes, duly marking the envelopes as “ORIGINAL” and “COPY”. The envelopes shall then be sealed in an outer envelope.
- 17.2 The inner and outer envelopes shall be addressed to the Employer at the address stated in the Appendix to Instructions to Tenderers and bear the name and identification of the Contract stated in the said Appendix with a warning not to open before the date and time for opening of tenders stated in the said Appendix.
- 17.3 The inner envelopes shall each indicated the name and address of the tenderer to enable the tender to be returned unopened in case it is declared “late”, while the outer envelope shall bear no mark indicating the identity of the tenderer.
- 17.4 If the outer envelope is not sealed and marked as instructed above, the Employer will assume no responsibility for the misplacement or premature opening of the tender. A tender opened prematurely for this cause will be rejected by the Employer and returned to the tenderer.

## 18 Deadline for Submission of Tenders

- 18.1 Tenders must be received by the Employer at the address specified in clause 17.2 and on the date and time specified in the Letter of Invitation, subject to the provisions of clause 7.4, 18.2 and 18.3.

Tenders delivered by hand must be placed in the “tender box” provided in the office of the Employer.

Proof of posting will not be accepted as proof of delivery and any tender delivered after the above stipulated time, from whatever cause arising will not be considered.

- 18.2 The Employer may, at his discretion, extend the deadline for the submission of tenders through the issue of an Addendum in accordance with clause 7, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline shall thereafter be subject to the new deadline as extended.
- 18.3 Any tender received by the Employer after the prescribed deadline for submission of tender will be returned unopened to the tenderer.

## 19 Modification and Withdrawal of Tenders

- 19.1 The tenderer may modify or withdraw his tender after tender submission, provided that written notice of the modification or withdrawal is received by the Employer prior to prescribed deadline for submission of tenders.

The tenderer’s modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions for the submission of tenders, with the inner and outer envelopes additionally marked “MODIFICATION” or “WITHDRAWAL” as appropriate.

- 19.2 No tender may be modified subsequent to the deadline for submission of tenders.
- 19.3 No tender may be withdrawn in the interval between the deadline for submission of tenders and the period of tender validity specified on the tender form. Withdrawal of a tender during this interval will result in the forfeiture of the Tender Surety.
- 19.4 Subsequent to the expiration of the period of tender validity prescribed by the Employer, and the tenderer having not been notified by the Employer of the award of the Contract or the tenderer does not intend to conform with the request of the Employer to extend the period of tender validity, the tenderer may withdraw his tender without risk of forfeiture of the Tender Surety.

## TENDER OPENING AND EVALUATION

## 20 Tender Opening

- 20.1 The Employer will open the tenders in the presence of the tenderers’ representatives who choose to attend at the time and location indicated in the Letter of Invitation to Tender. The tenderers’ representatives who are present shall sign a register evidencing their attendance.

- 20.2 Tenders for which an acceptable notice of withdrawal has been submitted, pursuant to clause 19, will not be opened. The Employer will examine the tenders to determine whether they are complete, whether the requisite Tender Sureties have been furnished, whether the documents have been properly signed and whether the tenders are generally in order.
- 20.3 At the tender opening, the Employer will announce the tenderer's names, total tender price, tender price modifications and tender withdrawals, if any, the presence of the requisite Tender Surety and such other details as the Employer, at his discretion, may consider appropriate. No tender shall be rejected at the tender opening except for late tenders.
- 20.4 The Employer shall prepare minutes of the tender opening including the information disclosed to those present.
- 20.5 Tenders not opened and read out a tender opening shall not be considered further for evaluation, irrespective of the circumstances.

## 21 Process to be Confidential

- 21.1 After the public opening of tenders, information relating to the examination, clarification, evaluation and comparisons of tenders and recommendations concerning the award of Contract shall not be disclosed to tenderers or other persons not officially concerned with such process until the award of Contract is announced.
- 21.2 Any effort by a tenderer to influence the Employer in the process of examination, evaluation and comparison of tenders and decisions concerning award of Contract may result in the rejection of the tenderer's tender.

## 22 Clarification of Tenders

- 22.1 To assist in the examination, evaluation and comparison of tenders, the Employer may ask tenderers individually for clarification of their tenders, including breakdown of unit prices. The request for clarification and the response shall be in writing or by cable, facsimile or telex, 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 arithmetical errors discovered by the employer during the evaluation of the tenders in accordance with clause 24.
- 22.2 No Tenderer shall contact the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. If the tenderer wishes to bring additional information to the notice of the Employer, he shall do so in writing.

## 23 Determination of Responsiveness

- 23.1 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender is substantially responsive to the requirements of the tender documents.

- 23.2 For the purpose of this clause, a substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tender documents without material deviation or reservation and has a valid bank guarantee. A material deviation or reservation is one which affects in any substantial way the scope, quality, completion timing or administration of the Works to be undertaken by the tenderer under the Contract, or which limits in any substantial way, inconsistent with the tender documents, the Employer's rights or the tenderers obligations under the Contract and the rectification of which would affect unfairly the competitive position of other tenderers who have presented substantially responsive tenders.
- 23.3 Each price or unit rate inserted in the Bills of Quantities shall be a realistic estimate of the cost of completing the works described under the particular item including allowance for overheads, profits and the like. Should a tender be seriously unbalanced in relation to the Employer's estimate of the works to be performed under any item or groups of items, the tender shall be deemed not responsive.
- 23.4 A tender determined to be not substantially responsive will be rejected by the Employer and may not subsequently be made responsive by the tenderer by correction of the non-conforming deviation or reservation.

#### 24 Correction of Errors

Tenders determined to be substantially responsive shall be checked by the Employer for any arithmetic errors in the Computations and summations. Errors will be corrected by the Employer as follows:

- (a) Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will govern.
- (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 adjustment will be made to the entry containing that error.
- (c) 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 13.

#### 25 Conversion to Single Currency

- 25.1 For compensation of tenders, the tender price shall first be broken down into the respective amounts payable in various currencies by using the selling rate or rates of the Central Bank of Kenya ruling on the date twenty eight (28) days before the final date for the submission of tenders.

- 25.2 The Employer will convert the amounts in various currencies in which the tender is payable (excluding provisional sums but including Dayworks where priced competitively) to Kenya Shillings at the selling rates stated in clause 25.1.

## 26 Evaluation and Comparison of Tenders

- 26.1 The Employer will evaluate only tenders determined to be substantially responsive to the requirements of the tender documents in accordance with clause 23.
- 26.2 In evaluating tenders, the Employer 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 24.
  - (b) Excluding Provisional Sums and provision, if any, for Contingencies in the Bills of Quantities, but including Day works where priced competitively.
- 26.3 The Employer reserves the right to accept any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in the accrual of unsolicited benefits to the Employer, shall not be taken into account in tender evaluation.
- 26.4 Price adjustment provisions in the Conditions of Contract applied over the period of execution of the Contract shall not be taken into account in tender evaluation.
- 26.5 If the lowest evaluated tender is seriously unbalanced or front loaded in relation to the Employer's estimate of the items of work to be performed under the Contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the relationship between those prices, proposed construction methods and schedules. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of subsequent default of the successful tenderer under the Contract.
- 26.6 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 a non-indigenous sub-contractor.

## AWARD OF CONTRACT

## 27 Award

- 27.1 Subject to clause 27.2, the Employer will award the Contract to the tenderer whose tender is determined to be substantially responsive to the tender documents and who has offered the lowest evaluated tender price subject to possessing the capability and resources to effectively carry out the Contract Works.

27.2 The Employer reserves the right to accept or reject any tender, and to annual the tendering process and reject all tenders, at any time prior to award of Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the Employer's action.

## 28 Notification of Award

28.1 Prior to the expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful tenderer by cable, telefax or telex and confirmed in writing by registered letter that his tender has been accepted. This letter (hereinafter and in all Contract documents called "Letter of Acceptance") shall name the sum (hereinafter and in all Contract documents called "the Contract Price") which the Employer will pay to the Contractor in consideration of the execution and completion of the Works as prescribed by the Contract.

28.2 Notification of award will constitute the formation of the Contract.

28.3 Upon the furnishing of a Performance Security by the successful tenderer, the unsuccessful tenderers will promptly be notified that their tenders have been unsuccessful.

28.4 Within twenty eight [28] days of receipt of the form of Contract Agreement from the Employer, the successful tenderer shall sign the form and return it to the Employer together with the required Performance Security.

## 29 Performance Guarantee

29.1 Within twenty eight [28] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with a Performance Security in an amount stated in the Appendix to Instructions to Tenderers.

29.2 The Performance Security to be provided by the successful tenderer shall be an unconditional Bank Guarantee issued at the tenderer's option by an established and a reputable Bank approved by the Employer and located in the Republic of Kenya and shall be divided into two elements namely, a performance security payable in foreign currencies (based upon the exchange rates determined in accordance with clause 35.4 of the Conditions of Contract) and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.

29.3 Failure of the successful tenderer to lodge the required Performance Security shall constitute a breach of Contract and sufficient grounds for the annulment of the award and forfeiture of the Tender Security and any other remedy under the Contract the Employer may award the Contract to the next ranked tenderer.



### 30 Advance Payment

An advance payment, if approved by the Employer, shall be made under the Contract, if requested by the Contractor, in accordance with clause 23.7 of the Conditions of Contract. The Advance Payment Guarantee shall be denominated in the proportion and currencies named in the form of foreign currency requirements. For each currency, a separate guarantee shall be issued. The guarantee shall be issued by a bank located in the Republic of Kenya, or a foreign bank through a correspondent bank located in the Republic of Kenya, in either case subject to the approval of the Employer.

## **APPENDIX TO INSTRUCTIONS TO TENDERERS**

### **1) OMIT**

Clauses 4.3, 5.1 (a), (d), (f), (h), (i), (j), 10.4, 10.5, 11.2, 11.4,15, 25, 26.6, 30

### **2) ADD TO CLAUSE 13.1**

Amount of tender surety shall be **Kshs. 400,000** either from a reputable Bank or an Insurance Firm recommended by Public Procurement Regulatory Authority (PPRA)

### **3) ADD TO CLAUSE 29.1**

Amount of performance security shall be five per cent (5%)

### **4) ADD TO CLAUSE 29.2**

Performance security shall not be divided in two elements and shall be payable in Kenya Shillings Only.

### **5) ADD CLAUSE 13.2**

Tender surety shall be valid for 30 days beyond the tender validity period.

### **6) ADD TO CLAUSE 24**

- (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
- (ii) The Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected sub-contract works (i.e. corrected tender sum less P.C; and Provisional Sums)
- (iii) The Error correction factor shall be applied to all sub-contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

### **7) MODIFY CLAUSE 10.5**

Clause 47 is not part of the Conditions of Contract Part II.

### **8) CLAUSE 28.4 AND 29.1**

Replace “twenty eight (28) days” with ‘Fourteen (14) days’

### **9) MODIFY CLAUSE 16 & 17**

Only one document (THE ORIGINAL) is to be filled, signed, sealed and submitted.

### **10) ADD TO CLAUSE 26.**

The evaluation criteria in **Appendix pages A16 – A22** shall form part of the evaluation.

## TENDER EVALUATION CRITERIA

After tender opening, the tenders will be evaluated in **4 stages**, namely:

1. Preliminary Evaluation;
2. Technical Evaluation;
3. Financial Evaluation; and
4. Recommendation for Award.

### STAGE 1: PRELIMINARY EVALUATION

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.

These conditions shall include the following:

- i) Company Certificate of incorporation/registration;
- ii) Current certificate of Registration with National Construction Authority (NCA 5 and above);
- iii) Current NCA contractor's license;
- iv) Current Class of Licenses with Energy Regulatory Commission;
- v) Proof of payment for tender document if required;
- vi) The bid has been submitted in the format required by the procuring entity;
- vii) Provision of a tender security of Kshs. 400,000 that is in the required format and is valid for 150 days from the date of tender opening.
- viii) Duly filled Form of Tender;
- ix) Valid Tax Compliance Certificate;
- x) Duly filled Confidential Business Questionnaire;
- xi) Duly signed Statement of Compliance;
- xii) The required number of copies of the Bid has been submitted and all required documents, information and samples have been submitted if stipulated in the tender, advertisement/Invitation letter;
- xiii) Signed Pre-tender site visit form if pre-tender site visit is required;
- xiv) Proof of authorization shall be furnished in the form of a written power of attorney which shall accompany the tender if the signatory to the tender is not a director of the company (provide name and attach proof of citizenship of the signatory to the Tender). Provide also Form CR12 from the Registrar of Companies.

#### **Note:**

- a) The bid security shall be in accordance with clauses 13 and 23.2 of Instruction to Tenderers which states as follows:
  - **Clause 13.1** of Instruction to Tenderers, "the tenderers shall furnish as part of his tenders a Bid surety in the amount stated in the tender document in the Appendix to Instructions to Tenderers".
  - **Clause 13.2** of Instruction to Tenderers, "the unconditional Tender surety shall be in Kenya shillings and be in form of a certified cheque, bank draft, an irrevocable letter of credit or a guarantee from a reputable Bank/ Insurance approved by PPRA located in the Republic of Kenya. The format of the surety shall be in accordance with the sample form included in the tender documents and the tender surety shall be valid for **150 days** from the date of tender opening".

- **Clause 23.2** of Instruction to Tenderers: “For the purposes of this clause, a substantially responsive tender is one which conforms to all terms and condition and specifications of the tender document without material deviation or reservation and has a valid Bank/Insurance guarantee”.
- b) The employer/procuring entity may seek further clarification/confirmation if necessary to confirm authenticity/compliance of any condition of the tender. Further, in case of a discrepancy between the amounts stated in the appendix to Instructions to Tenderers in Section A of this tender document and the one stated in the tender advertisement or invitation letter, the bid security shall be taken as the amount in the tender advertisement/ letter of invitation.

**The tenderers who do not satisfy any of the above mandatory requirements shall be considered Non-Responsive and their tenders will not be evaluated further.**

## **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) *On compliance with Technical Specifications, bidders shall supply equipment/items which comply with the technical specifications set out in the bid document. In this regard, the bidders will be required to submit relevant technical brochures/catalogues with the tender document, highlighting (using a mark-pen or highlighter) the Catalogue Number/model 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) All other requirements as indicated in the technical specifications of the bid.*

The bid will then be analyzed, using the information in the technical brochures, to determine compliance with key technical specifications for the works/items as indicated in the tender document. Bidders not complying with **any** of the key technical specifications shall be awarded **0 marks** while those meeting all the key technical specifications shall be awarded **40 marks** (evaluation committee may add more key requirements from the bid technical specifications).

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/Equipments they propose to supply.

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

<u>PARAMETER</u>	<u>MAXIMUM POINTS</u>
(i) Compliance with Technical Specifications.....	40
(ii) Tender Questionnaire -----	3
(iii) Key personnel -----	12
(iv) Contract Completed in the last Five (5) years -----	9
(v) Schedules of on-going projects -----	4
(vi) Schedules of contractors equipment -----	12
(vii) Audited Financial Report for the last 3 years -----	6
(viii) Evidence of Financial Resources -----	9
(ix) Name, Address and Telephone of Banks (Contractor to provide)..	3
(x) Litigation History -----	2
<b>TOTAL</b>	<b><u>100</u></b>

The pass-mark under the Technical Evaluation is 70 percent.

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

**TABLE 1: Technical Evaluation**

Item	Description	Points Scored	Max. Point
1	<b>Compliance with Technical Specifications</b> <ul style="list-style-type: none"> <li>• Compliant -----40</li> <li>• Non-compliant----- 0</li> </ul> <p><i>(Note: Tender Evaluation Committee to carryout analysis showing how decision on this requirement has been arrived at)</i></p>		40
2	<b>Tender Questionnaire Form</b> <ul style="list-style-type: none"> <li>• Completely filled ----- 5</li> <li>• Not filled ----- 0</li> </ul>		5
3	<b>Key Personnel (Attach evidence)</b>		
	<b>Director of the firm</b> <ul style="list-style-type: none"> <li>• Holder of degree in relevant Engineering field ----- 4</li> <li>• Holder of diploma in relevant Engineering field ----- 3</li> <li>• Holder of certificate in relevant Engineering field-----2</li> <li>• Holder of trade test certificate in relevant Engineering field-----1</li> <li>• No relevant certificate ----- 0</li> </ul>		4
	<b>At least 1No. degree/diploma holder of key personnel in relevant field</b> <ul style="list-style-type: none"> <li>• With over 10 years relevant experience ----- 4</li> <li>• With over 5 years relevant experience----- 2</li> <li>• With under 5 years relevant experience ----- 1</li> </ul>		4
	<b>At least 1No certificate holder of key personnel in relevant field</b> <ul style="list-style-type: none"> <li>• With over 10 years relevant experience----- 2</li> <li>• With over 5 years relevant experience ----- 1</li> <li>• With under 5 years relevant experience -----0.5</li> </ul>		2
	<b>At least 2No artisan (trade test certificate in relevant field)</b> <ul style="list-style-type: none"> <li>• Artisan with over 10 years relevant experience ----- 2</li> <li>• Artisan with under 10 years relevant experience ----- 1</li> <li>• Non skilled worker with over 10 years relevant experience --- 0</li> </ul>		2
4	<b>Contracts completed in the last five (5) years (Max of 3No. Projects)- Provide Evidence</b> <ul style="list-style-type: none"> <li>• Project of similar nature, complexity or magnitude ----- 3</li> <li>• Project of similar nature but of lower value than the one in consideration ----- 2</li> <li>• No completed project of similar nature -----0</li> </ul>		9

Item	Description	Points Scored	Max. Point
5	<b>On-going projects – Provide Evidence</b> <ul style="list-style-type: none"> <li>• No Project of similar nature, complexity and magnitude ----- 4</li> <li>• Three and below Projects of similar, nature complexity and magnitude -----3</li> <li>• Four and above Projects of similar nature, complexity and magnitude ----- 2</li> </ul>		4
6	<b>Schedule of contractors equipment and transport (proof or evidence of ownership/Lease)</b>		
	<b>a)Relevant Transport</b> <ul style="list-style-type: none"> <li>• Means of transport (Vehicle) ----- 6</li> <li>• No means of transport ----- 0</li> </ul>	6	12
	<b>b)Relevant Equipment</b> <ul style="list-style-type: none"> <li>• Has relevant equipment for work being tendered -----6</li> <li>• No relevant equipment for work being tendered ----- 0</li> </ul>	6	
7	<b>Financial report</b>		
	<b>a)Audited financial report (last three (3) years)</b> <ul style="list-style-type: none"> <li>• Average Annual Turn-over equal to or greater than the cost of the project -----6</li> <li>• Average Annual Turn-over above 50% but below 100% of the cost of the project -----3</li> <li>• Average Annual Turn-over below 50% of the cost of the project -----1</li> </ul>		6
	<b>b)Evidence of Financial Resources (cash in hand, lines of credit, over draft facility etc )</b> <ul style="list-style-type: none"> <li>• Has financial resources to finance the projected <b>monthly cash flow*</b> for three months -----9</li> <li>• Has financial resources equal to the projected <b>monthly cash flow*</b>-----6</li> <li>• Has financial resources less the projected <b>monthly cash flow*</b>-----3</li> <li>• Has not indicated sources of financial resources ----- 0</li> </ul>		9
8	<b>Name, Address and Telephone of Banks (Contractor to provide)</b> <ul style="list-style-type: none"> <li>• Information Provided----- 3</li> <li>• No Information Provided----- 0</li> </ul>		3
9	<b>Litigation History</b> <ul style="list-style-type: none"> <li>• Duly Filled ----- 2</li> <li>• Not filled ----- 0</li> </ul>		2
	<b>TOTAL</b>		100

Any bidder who scores 70 points and above shall be considered for further evaluation.

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

## **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:

- (i) Recommend no adverse action to the tenderer after a convincing response;
- (ii) 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;



(iii) 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.

**STAGE 4 - RECOMMENDATION FOR AWARD**

The successful bidder shall be the tenderer with the lowest evaluated tender price.

SECTION B

CONDITIONS OF CONTRACT

AND

SUB-CONTRACT AGREEMENT

## CONDITIONS OF CONTRACT

### 1.0 Definitions

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

**“Bills of quantities”** means the priced and completed bill of quantities forming part of the tender.

**“Compensation Events”** are those defined in clause 24 hereunder

**“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 Employer and the Contactor 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 the Employer.

**“The Contractor’s Tender”** is the completed tendering document submitted by the Contactor to the Employer.

**“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.

**“Defects”** is any piece of work 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. Central or Local 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 acceleration in the Works.

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

**“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 Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract 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”** means the place or places where the permanent Works are to be carried out including workshops where the same is being prepared.

**“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 Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

**“Start Date”** is the date when the Contractor shall commence execution of the Works.

**“A Sub-contractor”** 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.

**“Employer’s Representative”** is the person appointed by the Employer and notified to the Contractor for the purpose of supervision of the Works.

**“A Variation”** is an instruction given by the Employer’s Representative which varies the Works.

**“The Works”** are what the Contract requires the Contractor to construct, install, and turnover to the Employer.

## **2.0 Interpretation**

- 2.1 In interpreting the 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;
  - (1) Agreement,
  - (2) Letter of acceptance,
  - (3) Contractor's Tender,
  - (4) Appendix to Conditions of Contract,
  - (5) Conditions of Contract,
  - (6) Specifications,
  - (7) Drawings,
  - (8) Bills of Quantities,
  - (9) 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 the Employer 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 Employer) 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.

## **3.0 Language and Law**

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

## **4.0 Project Manager's Decision**

- 4.1 Except where otherwise specifically stated, the Project Manager will decide contractual matters between the Employer and the Contract in the role representing the Employer.

## **5.0 Delegation**

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

## **6.0 Communications**

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

## **7.0 Subcontracting**

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

## **8.0 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 Employer, as per the directions of the Project Manager. The Contractor shall also provide facilities and services for them. The employer may modify the said List of Other Contractors etc., and shall notify the Contractor of any such modification.

## **9.0 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.

## **10.0 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.

## **11.0 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.

## **12.0 Discoveries**

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

## **13.0 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.

## **14.0 Possession of Site**

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

## **15.0 Access to Site**

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

## **16.0 Instructions**

- 16.1 The Contractor shall carry out all instructions of the Project Manager which are in accordance with the Contract.

## **17.0 Extension of 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 with 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 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

## **18.0 Management Meetings**

- 18.1 A Contractor 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.

## **19.0 Early Warning**

- 19.1 The Contractor shall warn the Project 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 required 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 instruction of the Project Manager.

## **20.0 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 defects. 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 Defect 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.

## **21.0 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 Contractor 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.

## **22.0 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 do 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 cost
- 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 works, 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 cost 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.

## **23.0 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 the Employer once the Employer 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. The Employer shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of issue of each certificate. If the Employer 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 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 the Employer 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, the Employer reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services. The Employer and the Project manager shall be notified promptly by the Contractor of any 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 Employer 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 the Employer 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<sup>1</sup> = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This will exceed 20% but not exceed 80%.

X<sup>11</sup> = 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.

## 24.0 Compensation Events

24.1 The following issues shall constitute Compensation Events.

- a) The Employer does not give access to a part of the site by the Site Possession Date stated in the Appendix to Conditions of Contract.

- b) The Employer 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<sup>3</sup> 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 the Employer or additional works 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 the Employer's 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 Contract, 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 the Employer'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.

## **25.0 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 provision in the Contract Bills of Quantities or Specifications) for permanent incorporation in the Works. Unless otherwise stated in the Contract, if 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 there under;
- i) The price 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 price 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 rate.

## **26.0 Retention**

26.1 The Employer shall retain from the 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.

## **27.0 Liquidate Damages**

27.1 The Contractor shall pay liquidated damages to the Employer 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. The Employer 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.

## **28.0 Securities**

28.1 The Performance Security shall be provided to the Employer not 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 the Employer, 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.

## **29.0 Dayworks**

29.1 If applicable, the Day works 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 Day works 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 Day works subject to obtaining signed Day works forms.

## **30.0 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 of the Employer or in Employer'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 Employer'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 Employer's risk are contractor's risks.

The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts 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, the Employer 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.

### **31.0 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. The Employer shall take over the site and the works within seven (7) days of the Project manager's issuing a Certificate of Completion.

### **32.0 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 the Employer under 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. The Employer shall pay the Contractor the amount due in the Final certificate within 60 days.



### **33.0 Termination**

33.1 The Employer 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 the Employer 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 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 Contractor 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.

### **34.0 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 issue of the certificate. Additional liquidated damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable by the contractor.

- 34.2 If the contract is terminated for the Employer's convenience or because of a fundamental breach of contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, materials ordered, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the works, and the Contractor's costs of protecting and securing the works.
- 34.3 The Employer may employ and pay other persons to carry out and complete the works and to rectify and 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 o 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 building, plant, machinery, appliances, goods or materials belonging to or hired by him, and in default the Employer may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, hold the proceeds less all costs incurred to the credit of the Contractor. Until after completion of the works under this clause the Employer 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 the Employer 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 the Employer to the Contractor.

### **35.0 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 the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it.

### **36.0 Corrupt gifts and Payment of Commission**

- 36.1 The Contractor shall not;
- a) Offer or give or agree to give to any person in the service of the Employer 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 the Employer or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract for the Employer.

- b) Enter into this or any other contract with the Employer 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 the Employer.

Any breach of this Condition by the Contractor or by anyone employed by his 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.

### **37.0 Settlement of Disputes**

37.1 In case any dispute or difference shall arise between the Employer 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) Institute 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 hereunder 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 part:
- 37.5.1 The appointment of a replacement Project Manager upon the said person ceasing to act.
  - 37.5.2 Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.
  - 37.5.3 Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
  - 37.5.4 Any dispute or difference arising in respect of war risks or war damage.
- 37.6 All other matter shall only be referred to arbitration after the completion or alleged completion of the works or termination or alleged termination of the Contract, unless the Employer 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 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.
- 37.8 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.

APPENDIX TO CONDITIONS OF CONTRACT

CONDITIONS OF CONTRACT CLAUSE 1

The Employer is: **County Government of Meru**

Name of Employer's Representative: **Chief Officer, Department of Health**

Address: **P.O. Box 120- 60200, MERU**

CONDITIONS OF CONTRACT CLAUSE 1

The Project Manager is: **Works Secretary, State Department of Public Works, Nairobi**

Address: **P.O. Box 30743 - 00100, NAIROBI**

Telephone: **2723101**

CONDITIONS OF CONTRACT CLAUSE 1

The name (and identification number) of the Contract is: **PROPOSED ERECTION AND COMPLETION OF A WARD BLOCK AT MERU LEVEL 5 HOSPITAL (PHASE 1) AND ASSOCIATED ELECTRICAL, MECHANICAL AND EXTERNAL WORKS**

**W.P. ITEM NO. D108 /EN/ MRU 1601 - JOB NO. 0397F**

CONDITIONS OF CONTRACT CLAUSE 1

The Contract Works consist of **Supply, installation, testing and commissioning of Electrical Installation works.**

CONDITIONS OF CONTRACT CLAUSE 1

The start date shall be **as stated in the letter of acceptance**

CONDITIONS OF CONTRACT CLAUSE 1

The Intended Completion Date for the whole of the Works shall be **as stated in the Letter of Acceptance.**

CONDITIONS OF CONTRACT CLAUSE 2

The following documents also form part of the Contract: **Only as listed in Clause 2 of the conditions of contract.**

The Site Possession Date shall be **as stated in the Letter of Acceptance.**

CONDITIONS OF CONTRACT CLAUSE 1

The Site is located at **Meru Hospital - Meru Town, Meru County**

CONDITIONS OF CONTRACT CLAUSE 13

The contractor shall submit a revised program for the works within **7 days** of delivery of the letter of acceptance.

**CONDITIONS OF CONTRACT CLAUSE 1**

The Defects Liability Period is **6 months** from practical completion date

**CONDITIONS OF CONTRACT CLAUSE 32**

Period of final measurement: **3 months** after practical completion

**INSTRUCTION TO TENDERERS CLAUSE 20**

The tender opening date and time is **as stated in the Tender Invitation Notice.**

**INSTRUCTION TO TENDERERS CLAUSE 20**

The name and Address of the Employer's representative for the purposes of submission of Tenders is **as stated in the Tender Invitation Notice**

**INSTRUCTION TO TENDERERS CLAUSE 13**

Amount of Tender Security is **Kshs. 400,000**

**INSTRUCTION TO TENDERERS CLAUSE 29**

The amount of performance security is **5 percent** bank guarantee of the Contract Price.

**CONDITIONS OF CONTRACT CLAUSE 27**

Liquidated and Ascertained damages: **At the rate of Kshs. 5,000.00 per week or part thereof**

**CONDITIONS OF CONTRACT CLAUSE 23**

Period of honouring certificate : **30 days**

Percentage of certified value retained : **10%**

Limit of certified value retained : **10%**

Period between program updates is **14 days**

**OMIT CLAUSE 23.7**

PART II

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:-  
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and  
The Architectural Association of Kenya

**June 2002 Edition**

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Contractors.



## CONTENTS

<u>Clause</u>		<u>Page</u>
1.0	- Agreement	1-3
2.0	- General obligations of the Contractor	4
3.0	- General obligations of the Sub-Contractor	4
4.0	- Sub-contract documents	5
5.0	- General liability of the Sub-Contractor	5-6
6.0	- Insurance against injury to persons and property	6-7
7.0	- Performance bond	7
8.0	- Possession of site and commencement of works	7-8
9.0	- Architect's instructions	8
10.0	- Variations	8
11.0	- Liability for own equipment	8
12.0	- Provision of facilities by the Contractor	8-9
13.0	- Liability for own work	9-10
14.0	- Co-operation in use of facilities	10
15.0	- Assignment and subletting	10
16.0	- Work prior to appointment of Contractor	10-11
17.0	- Sub-Contractor design	11
18.0	- Specification of goods, materials and workmanship	11
19.0	- Compliance with statutory and other regulations	11-12
20.0	- Royalties and patent rights	12
21.0	- Antiquities and other objects of value	12
22.0	- Suspension of works	12
23.0	- Payments	12 - 14

24.0	-	Practical completion and defects liability	14-15
25.0	-	Extension of time	15
26.0	-	Loss and expense caused by disturbance of regular progress of the works	16
27.0	-	Damages for delay in completion	16
28.0	-	Fluctuations	16-17
29.0	-	Termination of the main contract	17
30.0	-	Termination of the Sub-contract	17-18
31.0	-	Settlement of disputes	18-20
	-	Sub-Contractor's performance bond	21
	-	Appendix	22

ORIGINAL

COUNTERPART

Embossed stamp

embossed stamp

1.0 AGREEMENT

1.1 This agreement is made on.....

between .....

of (or whose registered office is situated t).....

.....

(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 Architect shall be deemed to include reference to the Engineer.

1.9 In the even 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 clause 1.0 of 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 Architect 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 Architect 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 of clauses 9.0, 18.0, 19.0 22.0, 30.0, 31.0, 34.0 and 36.0 of 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 and 6.1.2 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 13.0 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 13.0 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 14.0 or 15.0 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 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 seven and a half per cent (7.5%) 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 programme, the main contract programme 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 ARCHITECT'S INSTRUCTIONS**

- 9.1** The Sub-Contractor shall forthwith comply with all the instructions issued to him by the Architect, either directly or through the Contractor, in regard to any matter in respect of which the Architect is expressly empowered by the main contract conditions to issue instructions.
- 9.2** The manner of complying with or querying the validity of an Architect's instruction shall be as provided in clause 22.0 of the main contract. The Sub-Contractor shall not be obliged to carry out 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 30.0 of the main contract.
- 10.2** The valuation of variations shall be made by the Quantity Surveyor in accordance with sub-clause 30.6 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 Architect.

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 Architect 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 of clause 23.0 of the main contract regulating the procurement, specification and quality assurance of materials, processes and workmanship and the requirements of clause 24.0 therein 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 of clause 17.0 of 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 25.0 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 clause 44.0 of the main contract.

## **22.0 SUSPENSION OF WORKS**

22.1 An instruction by the Architect 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 29.0 of 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. All 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 Architect 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 Architect 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 Where 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 Architect 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 Architect 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 Architect 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 Architect desires to secure final payment to the Sub-Contractor before final payment is due to the Contractor, the provisions of sub-clause 31.10 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 clause 42.0 of 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 at clause 41.0 of 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 sub-clause 41.6 and 41.7 of the main contract and after the Contractor has received the said payment as provided for in sub-clause 34.16.3 of 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 Architect with supporting details showing the extent of delay caused or likely to be caused. Thereafter, the Architect 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 Architect 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 Architect. 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 at clause 36.0 of 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 Architect, the Architect 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 clause 37.0 of 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 at clause 37.0 of 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 Architect 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 35.1 and 35.2 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 at sub-clause 35.3, 35.4 and 35.5 of 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 38.0, 39.0 or 40.0 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 Architect
- 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 39.5 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 38.8 of the main contract regarding the main contract accounts.

## **30.0 TERMINATION 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 Architect 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 Architect 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 Architect and to the Employer.

- 30.1 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 38.8 of the main contract regarding the main contract accounts.
- 30.2 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 Architect 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 Architect 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 Architect and to the Employer.
- 30.3 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.
- 30.4 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.
- 30.5 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 Architect has exercised or failed to exercise his powers stipulated in the main contract, or in the sub-contact 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 Architect 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 authorised by the main contract or the sub-contract, or
  - 31.4.5. Any other matter left to the discretion of the Architect 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 Architect 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 Architect 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 Architect 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 he 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, of 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

Authorized by Power of Attorney No .....

<b>APPENDIX</b>	<b>Clause</b>
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 at the rate of Kshs .....	27.1
Signed by the said:	

.....

**CONTRACTOR**

.....

**SUB-CONTRACTOR**

**APPENDIX TO SUB CONTRACT AGREEMENT (KABCEC)**

1. **MODIFY CLAUSE 7.0**

The performance bond shall be 5% (five per cent) of the sub contract amount.

2. **MODIFY CLAUSE 9.0**

Any reference made to Architect shall also mean the Project Manager.

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	C-1
1.02	Discrepancies	C-1
1.03	Conditions of Contract Agreement	C-1
1.04	Payments	C-2
1.05	Definition of Terms	C-2
1.06	Site Location	C-3
1.07	Duration of contract	C-4
1.08	Scope of contract Works	C-4
1.09	Extent of the Contractor's Duties	C-4
1.10	Execution of the Works	C-4
1.11	Validity of Tender	C-5
1.12	Firm – Price Contract	C-5
1.13	Variation	C-5
1.14	Prime Cost and Provisional Sums	C-6
1.15	Bond	C-6
1.16	Government Legislation and Regulations	-6
1.17	Import Duty and Value Added Tax	C-6
1.18	Insurance Company Fees	C-7
1.19	Provision of Services by the Main Contractor	C-7
1.20	Suppliers	C-8
1.21	Samples and Materials Generally	C-8
1.22	Administrative Procedure and Contractual Responsibility	C-8

1.23	Bills of Quantities	C-8
1.24	Contractor's Office in Kenya	C-9
1.25	Builders Work	C-9
1.26	Structural Provision for the Works	C-9
1.27	Position of Services, Plant, Equipment, Fittings and Apparatus	C-10
1.28	Checking of Work	C-10
1.29	Setting to Work and Regulating System	C-10
1.30	Identification of Plant and Components	C-11
1.31	Contract Drawings	C-11
1.32	Working Drawings	C-12
1.33	Record Drawings (As Installed) and Instructions	C-13
1.34	Maintenance Manual	C-15
1.35	Hand – Over	C-16
1.36	Painting	C-16
1.37	Spares	C-17
1.38	Testing and Inspection – Manufactured Plant	C-17
1.39	Testing and Inspection – Installation	C-17
1.40	Labour Camps	C-17
1.41	Storage of Materials	C-18
1.42	Initial Maintenance	C-18
1.43	Maintenance and Servicing after Completion of the Initial Maintenance	C-18
1.44	Trade Names	C-18
1.45	Water and Electricity for the Works	C-19
1.46	Protection	C-19

1.47	Defects after Completion	C-19
1.48	Damages for Delay	C-19
1.49	Clear Away on Completion	C-19
1.50	Final Account	C-19
1.51	Fair Wages	C-20
1.52	Supervision	C-20
1.53	Test Certificates	C-20
1.54	Labour	C-21
155	Discount to the Employer	C-21
1.56	Guarantee	C-21
1.57	Direct Contracts	C-22
1.58	Attendance upon the Tradesmen	C-22
1.59	Trade Union	C-22
1.60	Local and other Authorities notices and fees	C-22
1.61	Assignment or Subletting	C-23
1.62	Partial Completion	C-23
1.63	Temporary Works	C-24
1.64	Patent Rights	C-24
1.65	Mobilization and Demobilization	C-24
1.66	Extended Preliminaries	C-24
1.67	Supervision by Engineer and Site Meetings	C-24
1.68	Amendment to Scope of Contract Works	C-25
1.69	Contractors Obligation and Employers Obligation	C-25
1.70	Appendix to Sub-Contract preliminaries and General conditions	C-26

## 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 with 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 to the Main Contractor, unless he specifically agrees to forego this right, in which case direct payment can be made to the Sub-contractor. 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) **Employer:** The term “**Employer**” shall mean **County Government of Meru**
- ii) **Architect:** The term “**Architect**” shall mean **The Chief Architect, State Department of Public Works**
- iii) **Quantity Surveyor:** The term “**Quantity Surveyor**” shall mean **The Chief Quantity Surveyor, State Department of Public Works**
- iv) **Civil/Structural Engineers:** The term “**Civil/Structural Engineers** ” shall mean **The Chief Engineer( Structural), State Department of Public Works**
- v) **Electrical Engineer:** The term “**Electrical Engineer**” shall mean **Chief Engineer (Electrical), State Department of Public Works**
- vi) **Mechanical Engineer:** the term “**Mechanical Engineer**” shall mean **Chief Engineer (Mechanical (BS)), State Department of Public Works**
- 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.
- viii) **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.
- ix) **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.
- x) **Contract Drawings:** The term “**Contract Drawings**” shall mean those drawings required or referred to herein and forming part of the Bills of Quantities.
- xi) **Working Drawings:** The term “**Working Drawings**” shall mean those drawings required to be prepared by the Sub-contractor as hereinafter described.
- xii) **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.

xiii) **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 hole 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 **Meru Hospital – Meru County**

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 programme (or its revision). The programme 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 Architect 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 Architect 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 Architect 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 utilised 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 7½ % of the Sub-contract amount as Clause 31 of the Main 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 utilised 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.
  - 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 Architect 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 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, licences, 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 Architect 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 Writing 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 - Summarising 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 County 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 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 Contract 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.

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

**1. OMIT CLAUSE 1.12**

**2. ADD TO CLAUSE 1.17**

Prices quoted shall include **16% VAT**

In accordance with Government policy, the **3% Withholding Tax** shall be deducted from all payments made to the sub-contractor, and the same shall subsequently be forwarded to the Kenya Revenue Authority (KRA).

**3. ADD TO CLAUSE 1.40**

There is no labour camp

**4. CLAUSE 1.66**

Extended Preliminaries shall be equal to or less than liquidated and ascertained damages and are subject to mutual agreement.

**5. MODIFY CLAUSE 1.15**

Amount of performance bond shall be five per cent (5%)



SECTION D  
GENERAL SPECIFICATIONS  
OF  
MATERIALS AND WORKS

## GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

- 2.1 General
- 2.2 Standard of Materials
- 2.3 Workmanship
- 2.4 Procurement of Materials
- 2.5 Shop Drawings
- 2.6 Record Drawings
- 2.7 Regulations and Standards
- 2.8 Setting out Works
- 2.9 Position of Electrical Plant and Apparatus
- 2.10 M.C.B Distribution Panels and Consumer Units
- 2.11 Fused Switchgear and Isolators
- 2.12 Conduits and Conduit Runs
- 2.13 Conduit Boxes and Accessories
- 2.14 Labels
- 2.15 Earthing
- 2.16 Cables and Flexible Cords
- 2.17 Armoured PVC Insulated and Sheathed Cables
- 2.18 Cable Supports; Markers and Tiles
- 2.19 PVC Insulated Cables
- 2.20 Heat Resisting Cables
- 2.21 Flexible Cords
- 2.22 Cable Ends and phase Colours
- 2.23 Cable Insulation Colours

- 2.24 Sub-circuit Wiring
- 2.25 Space Factor
- 2.26 Insulation
- 2.27 Lighting Switches
- 2.28 Sockets and Switched sockets
- 2.29 Fused Spur Boxes
- 2.30 Cooker Outlets
- 2.31 Connectors
- 2.32 Lampholders
- 2.33 Lamps
- 2.34 lighting Fittings Street lighting Lanterns
- 2.35 Position of Points and Switches
- 2.36 Street/Security Lighting Columns
- 2.37 Timing Control Switch
- 2.38 Wiring System for Street Lighting
- 2.39 Metal control Pillar
- 2.40 Current Operated Earth leakage circuit breaker
- 2.41 MV Switchboard
- 2.42 Steel Conduits and Steel Trunking
- 2.43 Testing on Site

## **2.1 GENERAL**

This specification is to be read in conjunction with the drawings which are issued with it. Bills of quantities shall be the basis of all additions and omissions during the progress of the works.

## **2.2 STANDARD OF MATERIALS**

Where the material and equipment are specifically described and named in the Specification followed by approved equal, they are so named or described for the purpose of establishing a standard to which the sub-contractor shall adhere.

Should the Sub-contractor install any material not specified herein before receiving approval from the proper authorities, the Engineer shall direct the Sub-contractor to remove the material in question immediately. The fact that this material has been installed shall have no bearing or influence on the decision by the Engineer.

All materials condemned by the Engineer as not approved for use, are to be removed from the premises and suitable materials delivered and installed in their place at the expense of the Sub-contractor. All materials required for the works shall be new and the best of the respective kind and shall be of a uniform pattern.

## **2.3 WORKMANSHIP**

The workmanship and method of installation shall conform to the best standard practice. All work shall be performed by a skilled tradesman and to the satisfaction of the Engineer. Helpers shall have qualified supervision.

Any work that does not in the opinion of the Engineer conform to the best standard practice will be removed and reinstated at the Sub-contractors expense.

Permits, Certificates or Licenses must be held by all tradesmen for the type of work; in which they are involved where such permits, certificates or licenses exist under Government legislation.

## **2.4 PROCUREMENT OF MATERIALS**

The sub-contractor is advised that no assistance can be given in the procurement or allotment of any materials or products to be used in and necessary for the construction and completion of the work.

Sub-contractors are warned that they must make their own arrangements for the supply of materials and/or products specified or required.

## **2.5 SHOP DRAWINGS**

Before manufacture or Fabrication is commenced the sub-contractor shall submit Two copies of detailed drawings of all control pillars, meter cubicles, medium voltage switchboards including their components showing all pertinent information including sizes, capacities, construction details, etc, as may be required to determine the suitability of the equipment for the approval of the Engineer. Approval of the detailed drawings shall not relieve the sub-contractor of the full responsibility of errors or the necessity of checking the drawings himself or of furnishing the materials and equipment and performing the work required by the plans and specifications.

## **2.6 RECORD DRAWINGS**

These diagrams and drawings shall show the completed installation including sizes, runs and arrangements of the installation. The drawings shall be to scale not less than 1:50 and shall include plan views and section.

The drawings shall include all the details which may be useful in the operation, maintenance or subsequent modifications or extensions to the installation.

Three sets of diagrams and drawings shall be provided, all to the approval of the Engineer.

One coloured set of line diagrams relating to operating and maintenance instructions shall be framed and, mounted in a suitable location.

## **2.7 REGULATIONS AND STANDARDS**

All work executed by the Sub-contractor shall comply with the current edition of the "Regulations" for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers, and with the Regulations of the Local Electricity Authority.

Where the two sets of regulations appear to conflict, they shall be clarified with the Engineers. All materials used shall comply with relevant Kenya Bureau of Standards Specification.

## **2.8 SETTING OUT WORK**

The sub-contractor at his own expenses; is to set out works and take all measurements and dimensions required for the erection of his materials on site; making any modifications in details as may be found necessary during the progress of the works, submitting any such modifications or alterations in detail to the Engineer before proceeding and must allow in his Tender for all such modifications and for the provision of any such sketches or drawings related thereto.

## **2.9 POSITIONS OF ELECTRICAL PLANT AND APPARATUS**

The routes of cables and approximate positions of switchboards etc, as shown on the drawings shall be assumed to be correct for purpose of Tendering, but exact positions of all electrical Equipment and routes of cables must be agreed on site with the Engineer before any work is carried out.

## **2.10 MCB DISTRIBUTION PANELS AND CONSUMER UNITS**

All cases of MCB Panels and consumer units shall be constructed in heavy gauge sheet with hinged covers.

Removable undrilled gland plates shall be provided on the top and bottom of the cases. Miniature circuit breakers shall be enclosed in moulded plastic with the tripping mechanism and arc chambers separated and sealed from the cable terminals.

The operating dolly shall be tripfree with a positive movement in both make and break position. Clear indication of the position of the handle shall be incorporated.

The tripping mechanism shall be on inverse characteristic to prevent tripping in temporary overloads and shall not be affected by normal variation in ambient temperature.

A locking plate shall be provided for each size of breaker; A complete list of circuit details on typed cartridge paper glued to stiff cardboards and covered with a sheet of perspex, and held in position with four suitable fixings, shall be fitted to the inner face of the lids of each distribution panel. The appropriate MCB ratings shall be stated on the circuit chart against each circuit in use: Ivory labels shall be secured to the insulation barriers in such a manner as to indicate the number of the circuits shown on the circuit chart.

Insulated barriers shall be fitted between phases, and neutrals in all boards, and to shroud live parts.

Neutral cables shall be connected to the neutral bar in the same sequence as the phase cables are connected to the MCB's. This shall also apply to earth bars when installed.

## **2.11 FUSED SWITCHGEAR AND ISOLATORS**

All fused switchgear and isolators whether mounted on machinery, walls or industrial panels shall conform to the requirements of KS 04 – 226 PART: 1: 1985.

All contacts are to be fully shrouded and are to have a breaking capacity on manual operations as required by KS 04 – 182: 1980.

Fuse links for fused switches are to be of high rupturing capacity cartridge type, conforming to KS 04 – 183: 1978.

Isolators shall be load breaking/fault making isolators.

Fused switches and isolators are to have separate metal enclosures. Mechanical interlocks are to be provided between the door and main switch operating mechanism so arranged that the door may not be opened with the switch in the 'ON' position. Similarly; it shall not be possible to close the switch with the door open except that provision to defeat the mechanical interlock and close the switch with the door in the open position for test purposes. The 'ON' and 'OFF' positions of all switches and isolators shall be clearly indicated by a mechanical flag indicator or similar device. In T.P & N fused switch units, bolted neutral links are to be fitted.

## **2.12 CONDUITS AND CONDUIT RUNS**

Conduit systems are to be installed so as to allow the loop-in system of wiring:

All conduits shall be black rigid super high impact heavy gauge class 'A' PVC in accordance with KS 04 – 179: 1988 and IEE Regulations. No conduit less than 20mm in diameter shall be used anywhere in this installation.

Conduit shall be installed buried in plaster work and floor screed except when run on wooden or metal surface when they will be installed surface supported with saddles every 600mm. Conduit run in chases shall be firmly held in position by means of substantial pipe hooks driven into wooden plugs.

The Sub-contractors attention is drawn to the necessity of keeping all conduits entirely separate from other piping services such as water and no circuit connections will be permitted between conduits and such pipes. All conduits systems shall be arranged wherever possible to be self-draining to switch boxes and conduit outlet points for fittings:

The systems, when installed and before wiring shall be kept plugged with well fitting plugs and when short conduit pieces are used as plugs, they shall be doubled over and tied firmly together with steel wire; before wiring all conduit systems shall be carried out until the particular section of the conduit installation is complete in every respect.

The sets and bends in conduit runs are to be formed on site using appropriate size bending springs and all radii of bends must not be less than 2.5 times the outside diameter of the conduit. No solid or inspection bends, tees or elbows will be used.

Conduit connections shall either be by a demountable (screwed up) assembly or adhesive fixed and water tight by solution. The tube and fittings must be clean and free of all grease before applying the adhesive. When connections are made between the conduit and switch boxes, circular or non-screwed boxes, care shall be taken that no rough edges of conduit stick out into the boxes.

Runs between draw in boxes are not to have more than two right angle bends or their equivalent. The sub-contractor may be required to demonstrate to the Engineers that wiring in any particular run is easily withdrawable and the sub-contractor may, at no extra cost to the contract; be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6000mm, expansion couplings as manufactured by Egatube shall be used at intervals of 6000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Structural Engineer, shall be obtained. The sub-contractor shall be responsible for marking the accurate position of all holes chases etc, on site, or if the Engineer so directs, shall provide the Main Contractor with dimensional drawings to enable him to mark out and form all holes and chases. Should the sub-contractor fail to inform the main contractor of any inaccuracies in this respect they shall be rectified at the sub-contractors expense.

It will be the Sub-contractors responsibility to ascertain from site, the details of reinforced concrete or structural steelwork and check from the builder's drawings the positions of walls, structural concrete and finishes. No reinforced concrete or steelwork may be drilled without first obtaining the written permission of the Structural Engineer.

The drawings provided with these specifications indicate the appropriate positions only of points and switches, and it shall be the Sub-Contractors responsibility to mark out and centre on site the accurate positions where necessary in consultation with the Architect and the Engineer. The sub-contractor alone shall be responsible for the accuracy of the final position.

## **2.13 CONDUIT BOXES AND ACCESSORIES**

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern of the appropriate type to suit saddles being used or super high impact PVC manufactured to KS 04 – 179 : 1983.

Small circular pattern boxes are to be used with conduits up to and including 25mm outside diameter. Rectangular pattern adaptable boxes are to be used for conduits of 32mm outside diameter and larger. For drawing in of cables in exposed runs of conduit, standard pattern through boxes are to be used:

Boxes are to be not less than 50mm deep and of such dimensions as will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

Outlet boxes for lighting fittings are to be of the loop-in type where conduit installation is concealed and the sub-contractor shall allow one such box per fitting, except where fluorescent fittings are specified when two such boxes per fitting shall be fitted flush with ceiling and if necessary fitted with break joint rings. Pattresses shall be fitted where required to outlets on surface conduit runs.

Adaptable boxes are to be of PVC or mild steel (of not less than 12swg) and black enamelled or galvanised finish according to location. They shall be of square or oblong shape complete with lids secured by four 2 BA brass roundhead screws; No adaptable box shall be less than 75mm x 75mm x 50mm or larger than 300mm x 300mm x 75mm and shall be adequate in depth in relation to the size of conduit entering it. Conduits shall only enter boxes by means of conduit bushes.

## **2.14 LABELS**

Labels fitted to switches and fuseboards;-

- (i) Shall be Ivorine engraved black on white.
- (ii) Shall be secured by R.H brass screws of same manufacturing throughout.
- (iii) Shall be indicated on switches:-
  - a) Reference number of switch
  - b) Special current rating
  - c) Item of equipment controlled
- (iv) Shall indicate on MCB panels
  - a) Reference number
  - b) Type of board, i.e., lighting, sockets, etc.,
  - c) Size of cable supplying panel
  - d) where to isolate feeder cable
- (v) Shall be generally not less than 75mm x 50mm.

## **2.15 EARTHING**

The earthing of the installation shall comply with the following requirements;-

- (i) It shall be carried out in accordance with the appropriate sections of the current edition of the Regulations, for the Electrical Equipment of Buildings issued by Institute of Electrical Engineers of Great Britain.



- (ii) At all main distribution panels and main service positions a 25mm x 3mm minimum cross sectional area Copper tape shall be provided and all equipment including the lead sheath and armouring of cables, distribution boards and metal frames shall be bonded thereto.
- (iii) The earth tape in Sub-clause (ii) shall be connected by means of a copper tape or cable of suitable cross sectional area to an earth electrode which shall be a copper earth rod (see later sub-clause).
- (iv) All tapes to be soft high conductivity copper, untinned except where otherwise specified and where run underground on or through walls, floors, etc., it shall be served with corrosion resisting tape or coated with corrosion compound and braided
- (v) Where the earth electrode is located outside the building a removable test link shall be provided inside the building as near as possible to the point of entry to the tape, for isolating the earth electrode for testing purposes.
- (vi) Earthing of sub-main equipment shall be deemed to be satisfactory where the sub-main cables are M.I.C.S. or conduit with separate earth wire, and installation is carried out in accordance with the figures stated in the current edition of the I.E.E Regulations.
- (vii) Where an earth rod is specified (see Sub-clause (iii)) it shall be proprietary manufacture, solid hand drawn copper of 15mm diameter driven into the ground to a minimum depth of 3.6M. It shall be made up to 1.2m sections with internal screw and socket joints and fitted with hardened steel tip and driving cap.
- (viii) Earth plates will not be permitted
- (ix) Where an earth rod is used the earth resistance shall be tested in the manner described in the current edition of the IEE Regulations, by the Sub-Contractor in the presence of the Engineer and the Sub-Contractor shall be responsible for the supply of all test equipment.
- (x) Where copper tape is fixed to the building structure it shall be by means of purpose made non-ferrous saddles which space the conductor away from the structure a minimum distance of 20mm. Fixings, shall be made using purpose made plugs; No fixings requiring holes to be drilled through the tape will be accepted.
- (xi) Joints in copper tape shall be tinned before assembly riveted with a minimum of two copper rivets and seated solid.
- (xii) Where holes are drilled in the earth tape for connection to items of equipment the effective cross sectional area must not be less than required to comply with the IEE regulations.
- (xiii) Bolts, nuts and washers for any fixing to the earth tape must be of non-ferrous material.
- (xiv) Attention is drawn to the need for the earthing metal parts of lighting fittings and for bonding ball joint suspension in lighting fittings.

## 2.16 CABLES AND FLEXIBLE CORDS

All cables used in this Sub-Contract shall be manufactured in accordance with the current appropriate Kenya standard Specification which are as follows:-

P.V.C. Insulated Cables and Flexible Cords	---	Ks 04-192:1988
P.V.C Insulated Armoured Cables	---	Ks 04-194:1990
Armouring of Electric cables	---	Ks 04-290:1987

The successful Sub-Contractor will, at the Engineers discretion be required to submit samples of cables for the Engineers approval; the Engineer reserves the right to call for the cables of an alternative manufacture without any extra cost being incurred.

P.V.C. insulated cables shall be 500/1000 volt grade. No cables smaller than 1.5mm<sup>2</sup> shall be used unless otherwise specified. The installation and the finish of cables shall be as detailed in later clauses. The colour of cables shall conform to the details stated in the "Cable Braid and insulation Colours" Clause.

## 2.17 ARMoured P.V.C. INSULATED AND SHEATHED CABLES:

Shall be 600/1000 volt grade manufactured to Ks 04-194:1988 and Ks 04-187/188 with copper stranded conductors.

The wire armour of the cable shall be used wholly as an earth continuity conductor and the resistance of the wire armour shall have a resistance not more than twice of the largest current carrying conductor of the cable.

P.V.C./S.W.A./P.V.C. cables shall be terminated using "Telecom" "B" type or approved equal or approved equal glands and a P.V.C. tapered sleeve shall be provided to shroud each gland.

## 2.18 CABLE SUPPORTS, MARKERS AND TILES

All PVC/SWA/PVC cables run inside the building shall be fixed in rising ducts or on ceilings by means of die cast cable hooks or clamps, of appropriate size to suit cables, fixed by studs and back nuts to their channel sections.

Alternatively, fixing shall be by BICC claw type cleating system with die-cast cleats and galvanised mild steel back straps or similar approved equal method. For one or two cables run together the cleats shall be fixed a special channel section supports or backstraps described above which shall in turn be secured to walls or ceilings of ducts by rawbolts.

In excessively damp or corrosive atmospheric conditions special finishes may be required and the Sub-contractor shall apply to the Engineer for further instructions before ordering cleats and channels for such areas.

The above type of hooks and clamps and channels or cleats and blackstraps shall also be used for securing cables in vertical ducts.

Cables supports shall be fixed at 600mm maximum intervals, the supports being supplied and erected under this Sub-contract. Saddles shall not be used for supporting cables nor any other type of fixing other than one of the two methods described above or other system which has received prior approval of the Engineer;

Cables are to be kept clear of all pipe work and the Sub-contractor shall work in close liaison with other services Sub-contractors.

The Sub-Contractor shall include for the provision of fixing of approved type coloured slip on cables end markers to indicate permanently the correct phase and neutral colours on all ends.

Provision shall be made for supplying and fixing approved non-corrosive metal cable markers to be attached to the outside of all PVC/SWA/PVC cables at 15mm intervals indicating cable size and distinction.

Where PVC/SWA/PVC cables are outside the building they shall be laid underground 750mm deep with protecting concrete interlocking cover tiles laid over which shall be provided and laid under this Sub-contract.

All necessary excavations and reinstatement of ground including sanding or trenches will be carried out by the Sub-Contractor, unless otherwise stated.

#### **2.19 PVC INSULATED CABLES**

Shall be of non-braided type as CMA reference 6491 x 600/1000/1000 volt grade cables, or equal approved.

PVC cables shall conform to the details of the "Cables and Flexible cords" and "Cable Braid and Insulation Colours" clauses.

#### **2.20 HEAT RESISTING CABLES**

Final connections to cookers, water heaters, etc., shall be made using butyl rubber insulated cable as CMA reference 610 butyl (Single core 600/1000 Volt).

This type of cable shall be used in all instances where a temperature exceeding 100°F, but not exceeding 150°F is likely to be experienced. Final connections to all lighting fittings (and other equipment where a temperature in excess of 150°C likely to be experienced) shall be made using silicon rubber insulated cable or equal and approved.

#### **2.21 FLEXIBLE CORDS**

Shall be in accordance with the "Cable and Flexible Cords" clause. No cord shall be less than 24/0.2mm in size unless otherwise specified.

Circular white twin TRS flex shall be used for plain pendant fittings up to 100 watts. For all other types of lighting fittings the flexible cable shall be silicone rubber insulated.

No polythene insulated flexible cable shall be used in any lighting fitting or other appliance (see "Heat Resisting Cables" Clause 30).

## 2.22 CABLE ENDS AND PHASE COLOURS

All cable ends connected up in switchgear, MCB panels etc., shall have the insulation carefully cut back and the ends sealed with Hellerman rubber slip on cable end markers.

The markers shall be of appropriate phase colour for switch and all other live feeds to the details of the "Cable Insulation Colours" clause. Black cable with black end markers shall only be used for neutral cables.

## 2.23 CABLE INSULATION COLOURS

Unless otherwise stated in later clauses the insulation colours shall be in accordance with the following table.

Where other systems are installed the cable colours shall be in accordance with the details stated in the appropriate clause.

<u>SYSTEM</u> <u>CABLE END</u>	<u>INSULATION COLOUR</u>	
<u>MARKER</u>		
1) Main and Sub-Main		
a) Phase	Red	Red
b) Neutral	Black	Black
2) Sub-Circuits Single Phase		
a) Phase	Red	Red
b) Neutral	Black	Black

## 2.24 SUB-CIRCUIT WIRING

For all lighting and sockets wiring shall be carried out in the "looping in" system and there shall be no joints whatsoever. No lighting circuits shall comprise more than 20 points when protected by 10A MCB. Cables with different cross-section area of copper shall not be used in combination.

Lighting circuits P.V.C. cable.

- (i) 1.5mm<sup>2</sup> for all lighting circuits indicated on the drawing.

Power circuits P.V.C cable (minimum sizes).

- (ii) 2.5mm<sup>2</sup> for one, two or three 5Amp sockets wired in parallel.
- (iii) 2.5mm<sup>2</sup> for one 15Amp socket.
- (iv) 2.5mm<sup>2</sup> for maximum of ten switched 13 Amp sockets wired from 30 Amp MCB.

The wiring sizes for lighting circuits and sockets are shown on the drawings. In such cases, the sizes shown on the drawings shall prevail over the sizes specified.

Wiring sizes for other appliances shall be shown on the drawing or specified in later clauses of this specification.

#### **2.25 SPACE FACTOR**

The maximum number of cables that may be accommodated in a given size of conduit or trunking or duct is not to exceed the number in Tables B.5 and B.6 or as stated in Regulation B.91, B.117 and B.118 of the I.E.E Regulations whichever is appropriate.

#### **2.26 INSULATION**

The insulation resistance to earth and between poles of the whole wiring system, fittings and lumps, shall not be less than the requirements of the latest edition of the I.E.E Regulations. Complete tests shall be made on all circuits by the Sub-contractor before the installations are handed over.

A report of all tests shall be furnished by the Sub-Contractor to the Engineer. The Engineer will then check test with his own instruments if necessary.

#### **2.27 LIGHTING SWITCHES**

These shall be mounted flush with the walls, shall be contained in steel or alloy boxes and shall be of the gangs' ratings and type shown in the drawings. They shall be as manufactured by M.K. Electrical Ltd., or other equal and approved to KS 04 – 247: 1988

#### **2.28 SOCKETS AND SWITCHED SOCKETS**

These shall be flush pattern in steel/pvc box and shall be of the gangs and type specified in the drawings.

They shall be 13- Amp, 3-pin, shuttered, switched and as manufactured by "M.K. Electrical Co. Ltd.", or other approved equal to KS 04 – 246: 1987

#### **2.29 FUSED SPUR BOXES**

These shall be flush, D.P switched as in steel/pvc box and of type and make specified in the drawings complete with pilot light and as manufactured by "M. K. Electrical Company Ltd", or other approved equal. KS 04 – 247: 1988

#### **2.30 COOKER OUTLETS**

These shall be flush mounted with 13-A switched socket outlet and neon indicator Lamps.

The cooker control units shall be as manufactured by "M.K. Electrical Company Ltd", or other approved equal KS 04 – 247: 1988

### **2.31 CONNECTORS**

Shall be specified in the drawings and appropriate rating. These shall be fitted at all conduit box lighting point outlets for jointing of looped P.V.C cables with flexible cables of specified quality.

### **2.32 LAMPHOLDERS**

Shall be of extra heavy H.O skirted and shall be provided for every specified lighting fitting and shall be B.C., E.S., or G.E.S as required. All E.S. and G.E.S. holders shall be heavy brass type (except for plain pendants where the reinforced bakelite type shall be used). The screwed cap of the E.S and G.E.S. holders shall be connected to the neutral.

Where lampholders are supported by flexible cable, the holders shall have “cord grip” arrangements and in the case of metal shades earthing screws shall be provided on each of the holders.

The Sub-Contractor must order the appropriate type of holder when ordering lighting fittings, to ensure that the correct types of holders are provided irrespective of the type normally supplied by the manufacturers.

### **2.33 LAMPS**

All lamps shall be suitable for normal stated supply voltage and the number and sizes of lamps detailed on the drawings shall be supplied and fixed. The Sub-Contractor must verify the actual supply voltage with the supply authority before ordering the lamps.

Tungsten filament lamps shall be manufactured in accordance with KS 04 – 112:1978 for general service lamps and KS 04 – 307:1985 for lamps other than general services. Tubular fluorescent lamps shall comply with KS 04 – 464:1982

Pearl lamps shall be used in all fittings unless otherwise specified.

### **2.34 LIGHTING FITTINGS AND STREET LIGHTING LANTERNS**

This Sub-Contract shall include for the provision, handling charges, taking the delivery, safe storage, wiring (including internal wiring) assembling and erecting of all lighting fittings shown on the drawings.

All fittings and pendants shall be fixed to the conduit boxes with brass R/H screws. These to be in line with metal finish of fittings. The lighting fittings are detailed for the purpose of establishing a high standard of finish and under no circumstances will substitute fittings be permitted.

In case of rectangular shaped ceiling fittings, the extreme ends of the fittings shall be secured to suitable support in addition to the central conduit box fittings. Supports shall be provided and fixed by the Sub-Contractor.

The whole of the metal work of each lighting fittings shall be effectively bonded to earth. In the case of ball and/or knuckle joints short lengths of flexible cable shall be provided, bonded to the metal work on either side of the joints. If the above provisions are not made by the manufacturers -, the Sub-contractor shall include cost of additional work necessary in his tender. See “Flexible Cords” clause for details of internal wiring of lighting fittings.

Minimum size of internal wiring shall be 20/0.20mm (23/0067). Each lighting fitting shall be provided with number type and size of lamps as detailed on the drawings. It is to be noted that some fittings are suspended as shown on the drawings.

Where two or more points are shown adjacent to each other on the drawings, e.g socket outlet and telephone outlet, they shall be lined up vertically or horizontally on the centre lines of the units concerned.

Normally, the units shall be lined up on vertical centre lines, but where it is necessary to mount units at low level they shall be lined up horizontally.

### **2.35 POSITIONS OF POINTS AND SWITCHES**

Although the approximate positions of all points are shown on the drawings, enquiry shall be made as to the exact positions of all M.C.B panels, lighting points, socket outlets etc, before work is actually commenced. The Sub-contractor must approach the Architect with regard to the final layout of all lights on the ceiling and walls.

The Sub-contractor must consult with the Engineer in liaison with the Clerk of Works, or the General Foreman on site regarding the positions of all points before fixing any conduit etc. The Sub-Contractor shall be responsible for all alterations made necessary by the non-compliance with the clause.

### **2.36 STREET/SECURITY OUTDOOR LIGHTING COLUMNS:**

The column shall be at a minimum of 225mm in the ground on 75mm thick concrete foundations and the pole upto 150mm shall be surrounded with concrete. The top bracket and plain section of the columns shall be common to and interchangeable with all brackets with maximum mismatching tolerance of 3mm between any pole and bracket. After manufacture and before erection the columns shall be treated with an approved mordant solution which shall be washed off and the whole allowed to dry. Thereafter, the columns shall be painted with one undercoat and two coats of gloss paint to an approved colour. All columns shall be complete with fused cut-outs.

### **2.37 TIMING CONTROL SWITCH**

These shall be installed where shown on the drawings. Photocell timing control circuits which will operate 'on' with a specified level of darkness and 'off' with a given level of light. The initial adjustment will be done with approval of the Electrical Engineer.

### **2.38 WIRING SYSTEM FOR STREET LIGHTING**

Cables shall be as indicated on the drawings, and shall be laid in a cable trench 450mm deep along the road sides and 600mm deep across the roads and 900mm away from the road kerb or 1500mm away from the edges of the road. 'Loop-in' and 'Loop-out' arrangement shall be used at every pole. Wiring to the lanterns on each pole shall be with 1.5mm<sup>2</sup> PVC twin insulated and sheathed cable with earth wire shall be laid at least 600mm below the finished road level on a compact bed of murrum at least 50mm thick and covered with a concrete surrounded 150mm thick.

### **2.39 METAL CONTROL PILLAR**

These shall be metal clad and fabricated as per contract drawings and specification. The Sub-Contractor shall supply, install, test and commission control pillars including supplying, fixing connecting switchgears as detailed on the appropriate drawings.

## **2.40 CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER**

Current operated earth leakage circuit breaker shall conform to B.S.S. 4293:68 rated at 240 volts D.P. 50 cycles A.C. Mains.

The breaker shall be provided with test switch and fitted in weather proof enclosure for surface mounting. The rated load current and earth fault operating current shall be as specified in the drawings. These shall be as manufactured by Crabtree, Siemens or other equal and approved.

## **2.41 M.V. SWITCHBOARD AND SWITCHGEAR**

The switchboard shall be manufactured in accordance with KS04-226 which coordinates the requirements for electrical power switchgear and associated apparatus. It is not intended that this K.S. should cover the requirements for specified apparatus for which separate Kenyan Standard exist. All equipment and material used in the switchboard shall be in accordance with the appropriate Kenya Standard.

The switchboard shall comprise the equipment shown on the drawings together with all current transformers, auxiliary fuses, labels, small wiring and interconnections necessary for the satisfactory operation of the switchboard.

The Switchboard shall be of the flush fronted, enclosed, metal clad type with full front or rear access as called for in the particular specifications, suitable for indoor use, sectionalized as necessary to facilitate transport and erection. The maximum height of the switchboard is to be approximately 2.0 metres. A suitable connection chamber containing all field terminals shall be provided at the top or bottom of the switchboard as appropriate.

Before manufacture, the Sub-Contractor shall submit to the consulting Engineer for approval of detailed drawings showing the layout, construction and connection of the switchboard.

All bus-bars and bus-bar connections shall consist of high conductivity copper and be provided in accordance with KS 04-226: 1985. The bus-bars shall be clearly marked with the appropriate phase and neutral colours which should be red, yellow, blue for the phases and black for neutral. The bus-bars shall be so arranged in the switchboard that the extensions to the left and right may be made in the future with ease should the need arise.

Small wiring, which will be neatly arranged and cleated, shall be executed in accordance with B.S. 158 and the insulation of the wiring shall be coloured according to the phase or neutral connection.

Switches and fuse switches, shall be in strict accordance with KS04-183:1978 Class 2 switches. Means of locking the switch in the "OFF" position shall be provided.

All fuse switches shall comply with KS04-183:1978, PARTS 2 and 3 a fault rating at least equal to the fault rating of the switchboard in which they are installed. Cartridge fuse links to KS 04-183:1978 category A.C. 46, class Q1 and fusing factor not exceeding 1.5 shall be supplied with each fused switch.

Mounting arrangements shall be such that individual complete fuse switches may be disconnected and withdrawn when necessary without extensive dismantling work.



When switches are arranged in their formation all necessary horizontal and vertical barriers shall be provided to ensure segregation from adjacent units. Means of locking the switch in the "OFF" position shall be provided.

## **2.42 STEEL CONDUITS AND STEEL TRUNKING**

Conduits shall be of heavy gauge class "B" welded to Standard specification KS 04-180:1985. In no case will conduit smaller than 20mm diameter be used on the works. Conduits installed within buildings shall be black enamelled finish except where specified otherwise. Where installed externally or in damp conditions they shall be galvanised. Conduit fittings, accessories or equipment used in conjunction with galvanised conduits shall also be galvanised or otherwise as approved by the service engineer.

Metal trunking shall be fabricated from mild steel of not less than 18 swg. All sections of trunking shall be rigidly fixed together and attached to the framework or fabric or the building at intervals of not less than 1.2m. Joint trunking shall not overhang fixing points by more than 0.5m.

All trunking shall be made electrically continuous by means of 25 x 3mm copper links across each joint and where the trunking is galvanised, the links shall be made by galvanised flat iron strips.

All trunking fittings (i.e. Bends, tees, etc) shall leave the main through completely clear of obstructions and continuously open except through walls and floors at which points suitable fire resisting barriers shall be provided as may be necessary. The inner edge of bends and tees shall be chamfered where cables larger than 35mm<sup>2</sup> are employed.

Where trunking passes through ceilings and walls the cover shall be solidly fixed to 150mm either side of ceilings and floors and 50mm either side of walls.

Screws and bolts securing covers to trunking or sections of covers together shall be arranged so that damage to cables cannot occur either when fixing covers or when installing cables in the trough.

Where trunking is used to connect switchgear or fuseboards, such connections shall be made by trunking fittings manufactured for this purpose and not by multiple conduit couplings.

Where vertical sections of trunking are used which exceed 4.5m in length, staggered tie off points shall be provided at 4.5m intervals to support the weight of cables.

Unless otherwise stated, all trunking systems shall be painted as for conduit.

Where a wiring system incorporates galvanised conduit and trunking, the trunking shall be deemed to be galvanised unless specified otherwise.

The number of cables to be installed in trunking shall be such as to permit easy drawing in without damage to the cables, and shall in no circumstances be such that a space factor of 45% is exceeded.

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects.

Oil and any other insulating substance shall be removed from the screw threads; where conduits terminate in fuse-gear, distribution boards, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass bushes, compression washers and sockets. All exposed threads and abrasions shall be painted using an oil paint for black enameled tubing and galvanizing paint for galvanised tubing immediately after the conduits are erected. All bends and sets shall be made cold without altering the section of the conduit.

The inner radius of the bend shall not be less than four (4) times the outside diameter of the conduit. Not more than two right angle bends will be permitted without the inter-position of a draw-in-box. Where straight runs of conduit are installed, draw-in-boxes shall be provided at distances not exceeding 15m. No tees, elbows, sleeves, either of inspection or solid type, will be permitted.

Conduit shall be swabbed out prior to drawing in cables, and they shall be laid so as to drain of all condensed moisture without injury to end connections.

Conduits and trunking shall be run at least 150mm clear of hot water and steam pipes, and at least 75mm clear of cold water and other services unless otherwise approved by the services engineer.

All boxes shall conform to KS 04 – 668: 1986, to be of malleable iron, and black enamelled or galvanised according to the type of conduit specified. All accessory boxes shall have threaded brass inserts.

Box lids where required shall be heavy gauge metal, secured by means of zinc plated or cadmium plated steel screws.

All adaptable boxes and lids of the same size shall be interchangeable. Boxes used on surface work are to be tapped or drilled to line up with the conduit fixed in distance type saddles allowing clearance between the conduit and wall without the need for setting the conduit.

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

Draw-in boxes in the floors are generally to be avoided but where they are essential they must be grouped in positions approved by the services engineer and covered and by the suitable floor traps, with non-ferrous trays and covers.

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

The Sub-contractor must take full responsibility for the filling in of all covers, but the filling in material will be supplied and the filling carried out by the main building contractor.

Where buried in the ground outside the building the whole of the buried conduit is to be painted with two coats of approved bitumastic composition before covering up.

Where run on the surface, unpainted fittings and joints shall be painted with two coats of oil bound enamel applied to rust and grease free metalwork.

## 2.43 TESTING ON SITE

The Sub-contractor shall conduct during and at the completion of the installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings issued by the I.E.E of Great Britain, the Government Electrical Specification and the Electric Supply Company's By-Laws.

- (a) Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.
- (b) Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that each earth pin is effectively bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuit.
- (c) Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation. Triplicate copies of the results of the above tests shall be provided within 14 days of the witnessed tests and the Sub-contractor will be required to issue to the service engineer the requisite certificate upon completion as required by the regulations referred to above.
- (d) Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections or tests shall be rectified by the Sub-contractor at his own expense.
- (e) The Sub-contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the services engineer to enable him to carry out such tests as he may require.
- (f) The Sub-contractor shall generally attend on other contractors employed on the project and carry out such electrical tests as may be necessary.
- (g) The Sub-contractor shall test to the services engineer's approval and as specified elsewhere in this specification or in standards and regulations already referred to, all equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and setting to work.
- (h) Where such equipment, etc., forms part of or is connected to a system whether primarily or of an electrical nature or otherwise (e.g. air conditioning system) the Sub-contractor shall attend on and assist in balancing, regulating testing and commissioning, or if primarily an electrical or other system forming part of works, shall balance, regulate, test and commission the system to the service engineer's approval.

**APPENDIX TO GENERAL SPECIFICATIONS OF MATERIALS AND WORKS**

The electrical sub-contractor shall comply with the following:-

1. Government Electrical Specifications No. 1 and No. 2.
2. All requirements of Kenya Power Company Limited, and Communications Authority of Kenya (CA).

SECTION E

SCHEDULE OF CONTRACT DRAWINGS

### SCHEDULE OF CONTRACT DRAWINGS

DRAWING NO.	DRAWING TITLE
As shall be issued by the Engineer	

**NOTE:**

Tenderers are advised to inspect the electrical drawings at the office of the **Chief Engineer (Electrical) – State Department of Public Works**, at Chief Engineer's (Electrical) office, 5<sup>th</sup> Floor Hill Plaza Building, Community area, Nairobi along Ngong road, during normal working hours.

SECTION F  
PARTICULAR SPECIFICATIONS  
OF  
MATERIALS AND WORKS

## PARTICULAR SPECIFICATIONS

### 1.00 SITE LOCATION

The site of the proposed works is at **Meru Hospital - Meru Town, Meru County.**

### SCOPE OF WORKS

The works to be carried out under this sub-contract comprise supply, installation, testing and commissioning of the following:-

- a) **Electrical Works**  
This shall include conduiting, cabling, fittings and accessories.
- b) **Telephone and data installation**  
This shall include Conduiting and telephone/data outlet plates.  
*Telephone block-wiring, instruments and I.P.P.B.X shall be done by others.*
- c) **Fire Alarm System**  
This shall include fire alarm control panel, smoke/heat detectors, sounders, break glass and earthing.
- d) **Tv System**  
This shall include conduiting, coaxial cabling, Tv plates and MATV system.

### 2.00 MATERIALS FOR THE WORKS

Materials shall be as specified in Section D and in the Bills of Quantities of this document which shall be read in conjunction with contract drawings. Alternative materials shall be accepted only after approval by the Project Manager.

### 3.00 BROCHURES FOR FIRE ALARM PANNEL

For consideration and qualification tenderers shall, at their own cost, provide coloured manufacturer's brochures detailing technical literature and specifications where applicable.



**SECTION G**

**SCHEDULE OF UNIT RATES**

## SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorised variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted.

SCHEDULE OF UNIT RATES

NO	DESCRIPTION	UNIT RATE (KSHS)
1	<b>PVC/SWA/PVC Copper cables per metre</b> a) 2.5mm sq. 2 core b) 4.0 mm sq 4 core c) 6.0 mm sq 4 core d) 10 mm sq 4 core e) 16.0 mm sq 4 core f) 25.0 mm sq 4 core g) 35 mm sq 4 core h) 50 mm sq 4 core i) 70 mm sq 4 core j) 95 mm sq 4 core k) 120 mm sq 4 core	
2	IP 65 rated Isolators as KATKO, 3 Phase a) 20A b) 32A c) 63A d) 100A e) 200A	
3	IP 65 rated Isolators as KATKO, Single Phase a) 20A b) 32A c) 63A d) 100A	
4	Emergency Shutdown switch	
5	LED Flood Lights a) 30A Watts b) 100 Watts c) 200 Watts	
6	Distribution Boards a) 8 Ways TPN b) 9 Ways TPN	
7	Industrial Sockets outlets, 5 pin a) 20A b) 32A	
8	Industrial Sockets outlets, 3 pin a) 20A b) 32A	

**SECTION H**

**BILLS OF QUANTITIES**

## **BILLS OF QUANTITIES**

### **A) PRICING OF PRELIMINARIES ITEMS**

Prices will be inserted against item of preliminaries in the Contractor's Bills of Quantities and specification. These Bills are designated as Bill No.1 in this Section. Where the Contractor fails to insert his price in any item he shall be deemed to have made adequate provision for this on various items in the Bills of Quantities. The preliminaries form part of this contract and together with other Bills of Quantities covers for the costs involved in complying with all the requirements for the proper execution of the whole of the works in the contract.

The Bills of Quantities are divided generally into three sections:

#### **(a) Preliminaries – Bill No.1**

Contractor's preliminaries are as per those described in section C – Contract Preliminaries and General Conditions of Contract. The Contractor shall study the conditions and make provision to cover their cost in this Bill. The number of preliminary items to be priced by the Tenderer has been limited to tangible items such as site office, temporary works and others. However the Tenderer is free to include and price any other items he deems necessary taking into consideration conditions he is likely to encounter on site.

#### **(b) Installation Items – Other Bills**

- (i) The brief description of the items in these Bills of Quantities should in no way modify or supersede the detailed descriptions in the contract Drawings, conditions of contract and specifications.
- (ii) The unit of measurements and observations are as per those described in clause 1.0 5 of the section C.

#### **(c) Summary**

The summary contains tabulation of the separate parts of the Bills of Quantities carried forward with provisional sum, contingencies and any prime cost sums included. The Contractor shall insert his totals and enter his grand total tender sum in the space provided below the summary.

**This grand total tender sum shall be entered in the Form of Tender provided elsewhere in this document.**

## SPECIAL NOTES TO THE BILLS OF QUANTITIES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **16% VAT and 3% Withholding Tax**).

In accordance with Government policy, 3% Withholding Tax **shall be deducted** from all payments made to the tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.

3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part.
4. The brief descriptions of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the sub-contractor shall adhere to. Otherwise alternative brands of **equal and approved** quality will be accepted.

Should the sub-contractor install any material not specified here-in before receiving **approval** from the Project Manager, the sub-contractor shall remove the material in question and, **at his own cost**, install the proper material.

5. The grand total of prices in the price summary page must be carried forward to the **Form of Tender**.
6. Tenderers must enclose, together with their submitted tenders, detailed coloured manufacturer's Brochures detailing Technical Literature and specifications on all the equipment they intend to offer.

## Statement of Compliance

- a) I confirm compliance of all clauses of the General Conditions, General Specifications and Particular Specifications in this tender.
- b) I confirm I have not made and will not make any payment to any person, which can be perceived as an inducement to win this tender.

Signed: \_\_\_\_\_ *for and on behalf of the Tenderer*

Date: \_\_\_\_\_

Official Rubber Stamp: \_\_\_\_\_

**BILL NO.1: CONTRACT PRELIMINARIES(Refer to Section C of this Tender Document)**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
1.00	Descrpancies clause 1.02	1			
2.00	Conditions of sub-contract Agreement clause 1.03	1			
3.00	Payments clause 1.04	1			
4.00	Site location clause 1.06	1			
5.00	Scope of contract works clause 1.08	1			
6.00	Extent of contractors duties clause 1.09	1			
7.00	Firm price contract clause 1.12	1			
8.00	Variation clause 1.13	1			
9.00	Prime cost and provisional sum clause 3.14 (insert profit and attendance which is a percentagfe of expended PC or provisional sum	1			
10.00	Bond clause 1.15	1			
11.00	Governement legislation and regulations clause 1.16	1			
12.00	Import duty and VAT clause 1.17 (Note this clause applies for materials supplied only VAT will also be paid by the subcontractors as allowed in the sumary page)	1			
13.00	Insurance company fees clause 1.18	1			
14.00	Provision of servivces by the Main contractor clause 1.19	1			
15.00	Samples and materials general clause 1.21	1			
16.00	Supplies clause 1.20	1			
17.00	Bills of quantities clause 1.23	1			
18.00	Contractors office in kenya clause 1.24	1			
19.00	Builders work clause 1.25	1			
20.00	Setting to work and regulating system clause 1.29	1			
<b>Sub total carried to page H/5</b>					



**BILL NO.1 CONT'D: CONTRACT PRELIMINARIES(Refer to Section C of this Tender Document)**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
21.00	Identification of plant components clause 1.30	1			
22.00	Working drawings clause 1.32	1			
23.00	Records Drawings (As Installed) and instructions clause 1.33	1			
24.00	Maintenance Manual clause 1.34	1			
25.00	Hand over clause 1.35	1			
26.00	Painting clause 1.36	1			
27.00	Testing and inspection - manufactured plant clause 1.38	1			
28.00	Testing and inspection - installation clause 1.39	1			
29.00	Storage of materials clause 1.41	1			
30.00	Initial Maintenance Clause 1.42	1			
31.00	Attendance Upon Tradesmen etc (Insert percentage only) clause 1.58	1			
32.00	Local and other authorities notice clause 1.60	1			
33.00	Temporary works clause 1.63	1			
34.00	Patent Rights clause 1.64	1			
35.00	Mobilization and Demobilization clause 1.65	1			
36.00	Extended preliminaries clause 1.66 (see Appendix - clause 1.70)	1			
37.00	Supervision by Engineer and site meetings clause 1.67	1			
38.00	Allow for profit and attendance for the above	1			
	<b>Preliminary sub total carried to page no.H/5</b>				

**BILL NO.1 CONT'D: -CONTRACT PRELIMINARIES(Refer to Section C of this Tender Document)**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
39.00	Amendment to scope of subcontract works clause 1.68	1			
40.00	Contract obligation and employers obligation clause 1.69	1			
41.00	Any other preliminaries	1			
Sub-total from above					
Sub-total B/F from Page H/3					
Sub-total B/F from Page H/4					
<b>TOTAL CARRIED FORWARD TO MAIN SUMMARY PAGE NO. H/23</b>					

**Bidders MUST either insert percentage or indicate as NIL for the following clauses:**

- (1). Attendance upon Tradesmen, etc. (Insert percentage only) clause 1.58 of section C .....%
- (2). Extended Preliminaries (Insert percentage only) Clause 1.66 of section C .....% per month

**SCHEDULE NO.1 - LOWER GROUND FLOOR .**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	<b>Supply, install, test and commission the following :-</b>				
	<b><u>LIGHTING</u></b>				
1.01	Lighting points wired in 1.5 mm <sup>2</sup> SC CU cables drawn in concealed 20mm diameter HG P.V.C conduits for:-				
	a) one way switching	84	No.		
	b) two way switching	48	No.		
	c) unswitched	8	No.		
	<b><u>SWITCHES</u></b>				
1.02	10Amps, switch plate as BG NEXUS or approved equivalent as				
	a) one gang one way	23	No.		
	b) one gang two way	18	No.		
	c) two gang one way	2	No.		
	d) two gang two way	2	No.		
	d) three gang one way	1	No.		
	e) intermediate	2	No.		
	<b><u>LIGHTING FITTINGS</u></b>				
1.03	Lighting fittings complete with panels or tubes as follows:-				
	<b>a)</b> 20W, circular recessed LED luminaire with Aluminium die-cast housing as Philip SmartBright LED Downlight DN024B or approved equivalent.( Type R)	46	No.		
	<b>b)</b> 1200mm 34W Slim LED panel with polycarbonate diffuser and fixed driver, as PHILIPS SMARTBRIGHT RC091V or approved Equivalent. (Type A2)	34	No.		
	<b>c)</b> Ditto but Emergency	2	No.		
	<b>d)</b> 1200mm, 40 Watts LED waterproof Luminaire with polycarbonate housing and Philips Lumileds, as PHILIPS WATERPROOF WT099C or approved equivalent (Type C2)	2	No.		
	<b>d)</b> 20W, circular Surface mounted LED luminaire with Aluminium die-cast housing, as Philip SmartBright LED Downlight DN027C or approved equivalent.( Type D)	12	No.		
	<b>e)</b> 600mm x 600mm 34W Slim LED panel with polycarbonate diffuser and fixed driver, as PHILIPS SMARTBRIGHT RC091V or approved Equivalent. (Type E)	18	No.		
	<b>f)</b> Ultra Slim white aluminium bodied maintained/non maintained LED EXIT sign with engraved fire retardant acrylic sign blade for suspended use as THORN Voyager LED EXIT Sign or approved Equivalent	8	No.		
<b>SUB TOTAL C/F NEXT PAGE NO. H/7</b>					

**SCHEDULE NO. 1 CONT'D - LOWER GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/6</b>				
	<b>g) 70W LED Flood Light and fixed driver, as PHILIPS SMARTBRIGHT LED FLOODLIGHT BVP161 LED90 or approved Equivalent. (Type B)</b>	8	No.		
	<b>h) 15W Mirror Striplight with dual voltage shaver unit complete with tube, pull cord switch as thorn FLST13 or approved equivalent</b>	10	No.		
	<b><u>SOCKET OUTLETS AND OTHER POWER POINTS</u></b>				
1.04	13 Amps socket outlet points wired ring comprising of 3x2.5 mm sq. single core PVCI copper cables drawn in concealed 25mm HG PVC conduits and power coated metal Trunking.	78	No.		
1.05	13 Amps. Switched socket outlet with neon indicator as BG, CLIPSAL or approved equivalent a) single. b) twin.	10 68	No. No.		
	<b><u>COOKER POWER POINTS</u></b>				
1.06	Cooker point comprising of 3x6mm <sup>2</sup> PVCI Copper cables drawn in concealed 25mm dia. HG PVC conduits.	1	No		
1.07	Cooker control unit complete with 13 Amps. Switched socket outlet as THORN or approved equivalent.	1	No		
1.08	Cooker connection unit	1	No.		
	<b><u>HAND DRYER/WATER HEATERS</u></b>				
1.09	Solar Heater Booster power point comprising of 3 x 6.0mm <sup>2</sup> PVCI copper cables drawn in concealed in 32mm HG PVC conduits.	4	No.		
1.10	Hand dryer power point comprising of 3 x2.5mm <sup>2</sup> PVCI copper cables drawn in concealed in 32mm HG PVC conduits.	2	No.		
1.11	20 Amps double pole switches with neon indicator as CLIPSAL or approved equivalent for items above.	2	No.		
	<b>SUB TOTAL C/F TO SUMMARY PAGE NO. H/8</b>				

**SCHEDULE NO. 1 CONT'D - LOWER GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/7</b>				
	<b><u>AIR-CONDITIONING/EXTRACT FANS</u></b>				
1.12	Air-conditioning power point comprising of 4 x 6mm <sup>2</sup> PVCI copper cables drawn in concealed in 32mm HG PVC conduits.(out door Unit)	4	No.		
1.13	32 Amps TP/N isolator as CLIPSAL or approved equivalent for items above.	4	No.		
1.14	Extract Fan power point comprising of 3 x 4.0mm <sup>2</sup> PVCI copper cables drawn in concealed in 32mm HG PVC conduits.	5	No.		
1.15	32 Amps SP/N isolator as CLIPSAL or approved equivalent for items above.	5	No.		
	<b><u>TELEPHONE/DATA AND TV WORKS</u></b>				
1.16	Telephone/Data outlet point comprising of concealed 20 mm dia. HG PVC conduits plus draw wire.	50	No.		
1.17	Twin RJ45, Data/Telephone Moulded plate as BG NEXUS or approved equivalent.	50	No.		
1.18	TV outlet point complete with wiring in CO-AXIAL cable drawn in concealed HG PVC conduit including moulded plates.	22	No.		
1.19	16 SWG, (300 x 300 x 100) mm <sup>3</sup> galvanised steel draw box .	15	No.		
1.20	200 x 50mm two compartment powder coated steel trunking complete with covers, corner bends, twin punched socket outlet plate and data/telephone outlet and fixing accessories. The trunking to be angular section. Allow for colour change to Architect's detail. As produced by Power Technics or approved equivalent.	100	LM		
	<b>SUB TOTAL C/F TO NEXT PAGE NO. H/9</b>				

**SCHEDULE NO. 1 CONT'D - LOWER GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/8</b>				
	<b><u>CONSUMER UNITS/DISTRIBUTION BOARDS</u></b>				
1.21	9 ways TP&N, flush mounted distribution board complete with 100A integral isolator as CRABTREE or approved equivalent complete with all accessories but excluding MCBs.	3	No.		
1.22	6 ways TP&N, flush mounted distribution board complete with 100A integral isolator as CRABTREE or approved equivalent complete with all accessories but excluding MCBs.	1	No.		
1.23	MCB's for above items:-				
	(a) 10A, SP	14	No.		
	(b) 20A, SP	2	No.		
	(c) 32A, SP	23	No.		
	(d) 45A, SP	3	No.		
	(e) 32A, TP	3	No.		
	(f) 63A, TP	3	No.		
	(g) Blanking plates	24	No.		
	<b><u>SUB-MAIN POWER DISTRIBUTION</u></b>				
1.24	16mm <sup>2</sup> 4Core PVC/SWA/PVC Copper cables on perforated cable tray from LV Switchboard to DBs A, B & C	50	LM		
1.25	35mm <sup>2</sup> 4Core PVC/SWA/PVC Copper cables on perforated cable tray from LV Switchboard to DBs S1 & CP	20	LM		
1.26	300mm perforated galvanized steel cable tray complete with all fixing accessories.	120	LM		
1.27	50mm diameter HG PVC duct concealed in concrete slab complete with all accessories.	60	LM		
1.28	38mm diameter HG PVC duct concealed in concrete slab complete with all accessories.	60	LM		
	<b><u>FIRE ALARM SYSTEM.</u></b>				
1.29	Fire alarm points wired in 3x2.5mm <sup>2</sup> Heat resistant SC PVC copper cables drawn in concealed HG PVC conduits	45	No.		
<b>SUB TOTAL C/F TO SUMMARY PAGE NO. H/23</b>					

**SCHEDULE NO. 1 CONT'D - LOWER GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	<b>Supply, install, test and commission the following :-</b>				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/9</b>				
1.30	Addressable Smoke detectors as MENVIER or approved equivalent.	37	No.		
1.31	Addressable Fire break glass Manual call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover.	4	No.		
1.32	Addressable weatherproof LED sounder beacon as MENVIER MSB124DB or approved equivalent	4	No.		
	<b>FIREMAN'S SWITCH</b>				
1.33	Fireman's switch circuit comprising of 3x2.5 mm <sup>2</sup> Heat resistant single core PVC copper cables drawn in concealed 20mm HG PVC conduits complete with all fixing materials necessary to the Incomer.	1	No.		
1.34	Firemans switch as MENVIER or approved equivalent.	1	No.		
1.35	Water Booster pump power point comprising wiring in 3x6.0mm <sup>2</sup> PVC-SC-CU cables in concealed PVC conduits	2	LM		
1.36	32A SPN isolator for above item as CLIPSAL or approved equivalent.	2	No.		
	<b>MAIN LV BOARD</b>				
1.37	Metal clad, floor mounting Free standing, compartmentalized Main LV Board with 1No.600A TPN Bus Bars fully wired for 1No. 500A adjustable incomer TPN MCCB Cable chamber phase indicator lamps, selector switches, capacitor bank, CTs and metering chamber able to accommodate 1 No KPLC Three Phase Meter (TPN) and cut-out (TPN). The subboard shall be powder coated, degree of protection IP65, modular type fabricated from steel frames and sheet steel 14swg including testing, provision labeling the board <b>complete with</b> all fixing materials and accessories to Kenya Power approval as Power Technics or equal and approved equivalent and with the following: i) 1No. 600 A TP+ N + E busbars ii) 1No. 500 A TP+ N Adjustable MCCB Incomer iii) 1No. 300 A MCCB outgoing iv) 4 No. 100 A TP MCCBs outgoing v) 4 No. 80 A TP MCCB outgoing vii) 6 No. Blanked Spareways viii) 415V three-phase surge diverter as Furse ESP 415	1	No.		
	<b>SUB TOTAL C/F TO SUMMARY PAGE NO. H/23</b>				

**SCHEDULE NO. 1 CONT'D - LOWER GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/9</b>				
	<b><u>EARTHING</u></b>				
1.38	Earthing comprising of the following and any other necessary accessories:-				
	a) 15 mm x 1800 mm earth rod as FURSE cat. No. RB 105.	4	No.		
	b) 15 mm dia. Driving stud as FURSE cat.No. ST100.	4	No.		
	c) Rod to tape clamp as FURSE.	1	No.		
	d) Concrete inspection pit as FURSE cat. No.PT005. (or a well made 320mm x 320mmx 210 mm depth pit.)	4	No.		
	e)25X3 mm Copper tape.	20	LM		
1.39	2 x 150mm <sup>2</sup> 4Core PVC/SWA/PVC Armoured Copper cables in cable duct/Trench and rising duct from generator room to LV Switchboard	130	LM		
1.40	Trenching to a depth of 750mm and width of 450mm, laying, tiling and backfilling.	120	LM		
1.41	4 x 100mm HG ducts burried in the ground with a 100mm thick concrete surround, for laying KPLC underground service line cables	30	LM		
1.42	Power manhole size 600mm x 600mm x 750mm (deep) internally, consisting of 150mm solid concrete block walls and bottom in cement mortar (1:4), (600 x 600) mm medium duty cast iron cover and frame to BS 497	4	No.		
	<b>SUB TOTAL C/F TO SUMMARY PAGE NO. H/25</b>				



**SCHEDULE NO.2 - GROUND FLOOR .**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	<b>Supply, install, test and commission the following :-</b>				
	<b>LIGHTING</b>				
2.01	Lighting points wired in 1.5 mm <sup>2</sup> SC CU cables drawn in concealed 20mm diameter HG P.V.C conduits for:-				
	a) one way switching	155	No.		
	b) two way switching	32	No.		
	c) unswitched	5	No.		
	<b>SWITCHES</b>				
2.02	10Amps, switch plate as BG NEXUS or approved equivalent as				
	a) one gang one way	25	No.		
	b) one gang two way	10	No.		
	c) two gang one way	1	No.		
	d) three gang one way	2	No.		
	e) intermediate	1	No.		
	f) one gang two way dimmer	2	No.		
	<b>LIGHTING FITTINGS</b>				
2.03	Lighting fittings complete with bulbs or tubes as follows:-				
	a) 600mm x 600mm 34W Slim LED panel with polycarbonate diffuser and fixed driver, 25,000hrs lifetime as PHILIPS SMARTBRIGHT RC091V or approved Equivalent (Type E)	8	No.		
	b) 16.4W circular recessed LED panel luminaire , Dali Dimmable polycarbonate with white diffuser and DALI driver, as PHILIPS GREENSPACE DOWNLIGHTG4, DN293B or approved equivalent.( Type DL)	3	No.		
	c) 20W, circular recessed LED luminaire with Aluminium die-cast housing, as Philip SmartBright LED Downlight DN024B or approved equivalent.( Type R)	38	No.		
	d) 1200mm,20Watts Slim Batten LED as PHILIPS Essential BN012C or approved equivalent (Type A1)	24	No.		
	e) 1200mm 34W Slim LED panel with polycarbonate diffuser as PHILIPS SMARTBRIGHT RC091V or approved Equivalent. (Type A2)	6	No.		
	f) Ditto but Emergency	6	No.		
	g) 1200mm, 40 Watts LED waterproof Luminaire with polycarbonate housing, as PHILIPS WATERPROOF WT099C or approved equivalent (Type C2)	1	No.		
<b>SUB TOTAL C/F NEXT PAGE NO. H/13</b>					

**SCHEDULE NO. 2 CONT'D - GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/11</b>				
	h) 20W, circular Surface mounted LED luminaire with Aluminium die-cast housing, as Philip SmartBright LED Downlight DN027C or approved equivalent.( Type D)	33	No.		
	i) Ultra-Slim white aluminium bodied maintained/non maintained LED EXIT sign with engraved fire retardant acrylic sign blade for suspended use as THORN Voyager LED EXIT Sign or approved Equivalent	5	No.		
	j) 15W Mirror Striplight with dual voltage shaver unit complete with tube, pull cord switch as thorn FLST13 or approved equivalent	8	No.		
	k) Bedhead unit comprising of 1No. 18 Watts reading fluorescent light, 1 No. night light, pull cord Nurse call point, RJ45 Data outlet and 1 No. twin 13Amps 240V socket outlet, 6No. medical gas outlets of diameter 15mm as MEDICOMPACT or approved equivalent ( <i>Attach brochures</i> ).	60	No.		
	<b><u>SOCKET OUTLETS AND OTHER POWER POINTS</u></b>				
2.04	13 Amps socket outlet points wired ring comprising of 3x2.5 mm sq. single core PVCI copper cables drawn in concealed 25mm HG PVC conduits and power coated metal Trunking.	91	No.		
2.05	13 Amps. Switched socket outlet with neon indicator as BG, CLIPSAL or approved equivalent				
	a) single.	4	No.		
	b) twin.	87	No.		
2.06	Hand Dryer power point comprising of 3 x 2.5mm <sup>2</sup> PVCI copper cables drawn in concealed in 25mm HG PVC conduits.	6	No.		
2.07	20 Amps double pole switches with neon indicator as CLIPSAL or approved equivalent for items above.	6	No.		
2.08	Extract Fan power point comprising of 3 x 4.0mm <sup>2</sup> PVCI copper cables drawn in concealed in 32mm HG PVC conduits.	4	No.		
2.09	32 Amps double pole switches with neon indicator as CLIPSAL or approved equivalent for items above.	4	No.		
	<b>SUB TOTAL C/F TO NEXT PAGE NO. H/14</b>				

**SCHEDULE NO. 2 CONT'D - GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/12</b>				
2.10	Cooker point comprising of 3x6mm <sup>2</sup> PVCI Copper cables drawn in concealed 25mm dia. HG PVC conduits.	1	No		
2.11	Cooker control unit complete with 13 Amps. Switched socket outlet as THORN or approved equivalent.	1	No		
2.12	Cooker connection unit	1	No.		
2.13	200 x 50mm two compartment powder coated steel trunking complete with covers, corner bends, twin punched socket outlet plate and data/telephone outlet and fixing accessories. The trunking to be angular section. Allow for colour change to Architect's detail. As produced by Power Technics or approved equivalent.	30	LM		
	<b><u>TELEPHONE/DATA AND TV WORKS</u></b>				
2.14	Telephone/Data outlet point comprising of concealed 20 mm dia. HG PVC conduits plus draw wire.	16	No.		
2.15	Twin RJ45, Data/Telephone Moulded plate as BG NEXUS or approved equivalent.	16	No.		
2.16	TV outlet point complete with wiring in CO-AXIAL cable drawn in concealed HG PVC conduit including moulded plates.	22	No.		
2.17	16 SWG, (300 x 300 x 100) mm <sup>3</sup> PVC draw box .	6	No.		
	<b><u>CONSUMER UNITS/DISTRIBUTION BOARDS</u></b>				
2.18	9 ways TP&N, flush mounted distribution board complete with 100A integral isolator as CRABTREE or approved equivalent complete with all accessories but excluding MCBs.	2	No.		
2.19	6 ways TP&N, flush mounted distribution board complete with 100A integral isolator as CRABTREE or approved equivalent complete with all accessories but excluding MCBs.	2	No.		
2.20	MCB's for above item:-				
	(a) 10A, SP	10	No.		
	(b) 20A, SP	2	No.		
	(c) 32A, SP	23	No.		
	(d) 45A, SP	1	No.		
	(c) 80A, TP	3	No.		
	(d) Blanking plates	20	No.		
	<b>SUB TOTAL C/F TO NEXT PAGE NO. H/15</b>				

**SCHEDULE NO. 2 CONT'D - GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/13</b>				
	<b><u>SUB-MAIN POWER DISTRIBUTION</u></b>				
2.21	25mm <sup>2</sup> 4Core PVC/SWA/PVC Copper cables in cable duct/perforated cable tray and rising duct from LV Switchboard to DB S2	30	LM		
2.22	16mm <sup>2</sup> 4Core PVC/SWA/PVC Copper cables in cable duct/perforated cable tray and rising duct from DB S to DBs C, D and E	120	LM		
2.23	300mm perforated galvanized steel cable tray complete with all fixing accessories.	120	LM		
2.24	50mm diameter HG PVC duct concealed in concrete slab complete with all accessories.	120	LM		
2.25	32mm diameter HG PVC duct concealed in concrete slab complete with all accessories.	160	LM		
	<b><u>FIRE ALARM SYSTEM.</u></b>				
2.26	Fire alarm points wired in 3x2.5mm <sup>2</sup> <b>Heat resistant</b> SC PVC copper cables drawn in concealed HG PVC conduits	42	No.		
2.27	Addressable Smoke detectors as MENVIER or approved equivalent.	36	No.		
2.28	Addressable Fire break glass Manual call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover.	3	No.		
2.29	Addressable weatherproof LED sounder beacon as MENVIER MSB124DB or approved equivalent	3	No.		
2.30	Flush mounted 16 Zone, Addressable Fire alarm control panel complete with Battery and charger as MENVIER MF9316L or approved equivalent	1	No.		
2.31	power point wired radial comprising of 3x2.5 mm sq. <b>Heat resistant</b> single core PVCI copper cables drawn in concealed 20mm HG PVC conduits for item 2.49 above.	1	No.		
2.32	Allow for training of client staff on the all operations of the fire alarm system	1	Item		
	<b>SUB TOTAL C/F TO NEXT PAGE NO. H/16</b>				

**SCHEDULE NO. 2 CONT'D - GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/9</b>				
	<b><u>NURSE CALL SYSYTEM</u></b>				
2.33	Nurse call system points comprising of wiring in 6 core PVC insulated copper cable drawn in concealed 20mm dia. HG conduits.	66	No.		
2.34	Wall mounted over door lights for Nurse call system.	15	No		
2.35	Nurse call system pull cord call switch on bedhead unit	42	No		
2.36	Nurse call/reset switch on bedhead unit	42	No		
2.37	Nurse call system ceiling pull cord call switch in toilet area	4	No.		
2.38	Nurse call/reset switch on toilet area	4	No		
2.39	Nurse call system pull cord call switch in assisted bath	5	No.		
2.40	Nurse call/reset switch in assisted bath	5	No		
2.41	250 VAC 50 HZ, flush mounted Nurse call control panel with a minimum of 80 No. patient stations, alarm sounder, lamp test facility for the dome lights and LEDs, continuous supervision of addressable devices to Engineer's approval.	1	No.		
2.42	Allow for training of client staff on the all operations and maintenance of the Nurse Call system	1	Item		
	<b>SUB TOTAL C/F TO SUMMARY PAGE NO. H/25</b>				

**SCHEDULE NO.3 - FIRST, SECOND & THIRD FLOORS**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	<b>Supply, install, test and commission the following :-</b>				
	<b><u>LIGHTING</u></b>				
3.01	Lighting points wired in 1.5 mm <sup>2</sup> SC CU cables drawn in concealed 20mm diameter HG P.V.C conduits for:-				
	a) one way switching	149	No.		
	b) two way switching	37	No.		
	c) unswitched	3	No.		
	<b><u>SWITCHES</u></b>				
3.02	10Amps, switch plate as BG NEXUS or approved equivalent as				
	a) one gang one way	14	No.		
	b) one gang two way	8	No.		
	c) two gang one way	1	No.		
	d) three gang one way	4	No.		
	d) four gang one way	1	No.		
	e) intermediate	6	No.		
	f) one gang two way dimmer	2	No.		
	<b><u>LIGHTING FITTINGS</u></b>				
3.03	Lighting fittings complete with bulbs or tubes as follows:-				
	a) 600mm x 600mm 34W Slim LED panel with polycarbonate diffuser and fixed driver, 25,000hrs lifetime as PHILIPS SMARTBRIGHT RC091V or approved Equivalent (Type E)	4	No.		
	b) 15.4W circular recessed LED panel luminaire, Dali Dimmable polycarbonate with white diffuser and DALI driver, 50,000hrs as PHILIPS GREENSPACE DOWNLIGHTG4, DN293B or approved equivalent.( Type DL)	3	No.		
	c) 20W, circular recessed LED luminaire with Aluminium die-cast housing, 20,000hrs as Philip SmartBright LED Downlight DN024B or approved equivalent.( Type R)	24	No.		
	d) 1200mm, 40 Watts LED waterproof Luminaire with polycarbonate housing and Philips Lumileds, IP65, 2500hrs as PHILIPS SMARTBRIGHT WT066C or approved equivalent (Type A1)	39	No.		
	e) 1200mm 34W Slim LED panel with polycarbonate diffuser and fixed driver, 25,000hrs lifetime as PHILIPS SMARTBRIGHT RC091V or approved Equivalent. (Type A2)	8	No.		
	f) Ditto but Emergency	4	No.		
<b>SUB TOTAL C/F NEXT PAGE NO. H/18</b>					

**SCHEDULE NO. 3 CONT'D - FIRST, SECOND & THIRD FLOORS**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/15</b>				
	g) 1200mm, 40 Watts LED waterproof Luminaire with polycarbonate housing and Philips Lumileds, IP65, 25,000hrs as PHILIPS WATERPROOF WT099C or approved equivalent (Tvpe C2)	2	No.		
	h) 20W, circular Surface mounted LED luminaire with Aluminium die-cast housing, 20,000hrs as Philip SmartBright LED Downlight DN027C or approved equivalent.( Tvpe D)	32	No.		
	i) Ultra-Slim white aluminium bodied maintained/non maintained LED EXIT sign with engraved fire retardadnt acrylic sign blade for suspended use as THORN Voyager LED EXIT Sign or approved Eeuivalent	3	No.		
	j) 15W Mirror Striplight with dual voltage shaver unit complete with tube, pull cord switch as thorn FLST13 or approved equivalent	8	No.		
	k) Bedhead unit comprising of 1No. 18 Watts reading fluorescent light, 1 No. night light, pull cord Nurse call point, RJ45 Data outlet and 1 No. twin 13Amps 240V socket outlet, 6No. medical gas outlets of diameter 15mm as MEDICOMPACT or approved equivalent ( <i>Attach brochures</i> ).	60	No.		
	<b><u>SOCKET OUTLETS AND OTHER POWER POINTS</u></b>				
3.04	13 Amps socket outlet points wired ring comprising of 3x2.5 mm sq. single core PVCI copper cables drawn in concealed 25mm HG PVC conduits and power coated metal Trunking.	176	No.		
3.05	13 Amps. Switched socket outlet with neon indicator as BG, CLIPSAL or approved equivalent				
	a) single.	9	No.		
	b) twin.	107	No.		
3.06	Hand Dryer power point comprising of 3 x 2.5mm2 PVCI copper cables drawn in concealed in 25mm HG PVC conduits.	9	No.		
3.07	20 Amps double pole switches with neon indicator as CLIPSAL or approved equivalent for items above.	9	No.		
	<b>SUB TOTAL C/F TO NEXT PAGE NO. H/19</b>				

**SCHEDULE NO. 3 CONT'D - FIRST, SECOND & THIRD FLOORS**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/16</b>				
3.08	Extract Fan power point comprising of 3 x 4.0mm <sup>2</sup> PVCII copper cables drawn in concealed in 32mm HG PVC conduits.	8	No.		
3.09	32 Amps double pole switches with neon indicator as CLIPSAL or approved equivalent for items above.	8	No.		
3.10	Cooker point comprising of 3x6mm <sup>2</sup> PVCII Copper cables drawn in concealed 25mm dia. HG PVC conduits.	1	No		
3.11	Cooker control unit complete with 13 Amps. Switched socket outlet as THORN or approved equivalent.	1	No		
3.12	Cooker connection unit	1	No.		
	<b><u>TELEPHONE/DATA AND TV WORKS</u></b>				
3.13	Telephone/Data outlet point comprising of concealed 20 mm dia. HG PVC conduits plus draw wire.	10	No.		
3.14	Twin RJ45, Data/Telephone Moulded plate as BG NEXUS or approved equivalent.	10	No.		
3.15	TV outlet point complete with wiring in CO-AXIAL cable drawn in concealed HG PVC conduit including moulded plates.	22	No.		
	<b>SUB TOTAL C/F TO NEXT PAGE NO. H/20</b>				



**SCHEDULE NO. 3 CONT'D - FIRST, SECOND & THIRD FLOORS**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/16</b>				
3.16	16 SWG, (300 x 300 x 100) mm <sup>3</sup> galvanised steel draw box .	5	No.		
	<b><u>CONSUMER UNITS/DISTRIBUTION BOARDS</u></b>				
3.17	9 ways TP&N, flush mounted distribution board complete with 100A integral isolator as CRABTREE or approved equivalent complete with all accessories but excluding MCBs.	3	No.		
3.18	6 ways TP&N, flush mounted distribution board complete with 100A integral isolator as CRABTREE or approved equivalent complete with all accessories but excluding MCBs.	1	No.		
3.19	MCB's for above item:-				
	(a) 10A, SP	17	No.		
	(b) 20A, SP	2	No.		
	(c) 32A, SP	27	No.		
	(d) 45A, SP	1	No.		
	(c) 80A, TP	3	No.		
	(d) Blanking plates	19	No.		
	<b><u>SUB-MAIN POWER DISTRIBUTION</u></b>				
3.20	25mm <sup>2</sup> 4Core PVC/SWA/PVC Copper cables in cable duct/perforated cable tray and rising duct from LV Switchboard to DB S	20	LM		
3.21	16mm <sup>2</sup> 4Core PVC/SWA/PVC Copper cables in cable duct/perforated cable tray and rising duct from DB S to DBs F, G & H	120	LM		
3.22	300mm perforated galvanized steel cable tray complete with all fixing accessories.	120	LM		
3.23	50mm diameter HG PVC duct concealed in concrete slab complete with all accessories.	120	LM		
3.24	32mm diameter HG PVC duct concealed in concrete slab complete with all accessories.	160	LM		
<b>SUB TOTAL C/F TO NEXT PAGE NO. H/21</b>					

**SCHEDULE NO. 2 CONT'D - GROUND FLOOR**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b>SUBTOTAL B/F FROM PREVIOUS PAGE H/9</b>				
	<b><u>FIRE ALARM SYSTEM.</u></b>				
3.25	Fire alarm points wired in 3x2.5mm <sup>2</sup> Heat resistant SC PVC copper cables drawn in concealed HG PVC conduits	58	No.		
3.26	Addressable smoke detectors as MENVIER or approved equivalent.	52	No.		
3.27	Addressable Fire break glass Manual call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover.	3	No.		
3.28	Addressable conventional weatherproof LED sounder beacon as MENVIER or approved equivalent	3	No.		
	<b><u>NURSE CALL SYSTEM</u></b>				
3.29	Nurse call system points comprising of wiring in 6 core PVC insulated copper cable drawn in concealed 20mm dia. HG conduits.	89	No.		
3.30	Wall mounted over door lights for Nurse call system.	20	No		
3.31	Nurse call system pull cord call switch on bedhead unit	60	No		
3.32	Nurse call/reset switch on bedhead unit	60	No		
3.33	Nurse call system ceiling pull cord call switch in toilet area	4	No.		
3.34	Nurse call/reset switch on toilet area	4	No		
3.35	Nurse call system pull cord call switch in assisted bath	5	No.		
3.36	Nurse call/reset switch in assisted path	5	No		
3.37	250 VAC 50 HZ, flush mounted Nurse call control panel with a minimum of 80 No. patient stations, alarm sounder, lamp test facility for the dome lights and LEDs, continuous supervision of addressable devices to Engineer's approval.	1	No.		
	<b>SUB TOTAL FOR 1NO. FLOOR</b>				
					<b>X3</b>
	<b>SUB TOTAL FOR 3NO. FLOORS C/F TO SUMMARY PAGE NO. H/25</b>				

**SCHEDULE NO.4 - CENTRALIZED ANTENNA SYSTEM**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
4.00	<u>CENTRALIZED ANTENNA SYSTEM</u>				
4.01	Mast High gain amplifier units	4	No.		
4.02	Four way splitters as Ellies or approved equivalent	40	No.		
4.03	13 AMP High voltage guard as sollatec or approved equivalent	30	No.		
4.04	16 SWG, (300 x 300 x 300) mm <sup>3</sup> galvanised steel draw box for TV works.	10	No.		
4.05	DSTV decoders complete with mounting brackets	2	No.		
4.06	Satallite Receiver Dish for DSTV complete with mounting and installation	2	No.		
4.07	55" TFT LED screen as Sony/LG complete with mounting	1	No.		
4.08	Security lock box to engineer's approval	2	No.		
<b>SUB TOTAL C/F TO SUMMARY PAGE NO. H/25</b>					

**SCHEDULE NO. 5 - LIGHTNING PROTECTION SYSTEM**

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following :-				
	<b><u>LIGHTNING PROTECTION</u></b>				
	<b><u>AIR TERMINATION</u></b>				
6.01	25x3mm copper tape including copper saddles at 1500mm intervals and bonding to water tanks and other metal work in the roof , all as FURSE	150	LM		
6.02	State Holdfast as Furse Cat. No. HF015 to fix the above tape to the roof	100	No.		
6.03	Copper air terminations (lightning arrestors) inclusive of base clamp and all fixing materials as FURSE	3	No.		
	<b><u>DOWNWARD CONDUCTOR</u></b>				
6.04	Downward conductor comprising 25mm x 3 mm thick bare copper tape as FURSE	80	LM		
6.05	Copper square tape clamp for making crossing tape joints	6	No.		
6.06	Steel conduits 32mm diam. for securing the down conductors complete with sandles	80	LM		
6.07	Test clamp as FURSE	6	No.		
	<b><u>EARTHING.</u></b>				
6.08	Earthing comprising of the following and any other necessary accessories:-				
	a) 15 mm x 1800 mm earth rod as FURSE cat. No. RB 105.	6	No.		
	b) 15 mm dia. Driving stud as FURSE cat.No. ST100.	6	No.		
	c) Rod to tape clamp as FURSE.	6	No.		
	d) Concrete inspection pit as FURSE cat. No.PT005. (or a well made 320mm x 320mmx 210 mm depth pit.)	6	No.		
	e) 25x3mm copper tape	10	LM		
<b>TOTAL C/F TO MAIN SUMMARY PAGE No. H/25</b>					

**SCHEDULE NO. 6 - ENGINEER'S STATIONERY**

<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>RATE KSHS</b>	<b>AMOUNT KSHS</b>
4.01	Photocopy paper A4 (80g/cm3) white	5	Ream		
4.02	Photocopy paper A4 (80g/cm3) green	2	Ream		
4.03	Printer cartridge 53A	2	No		
4.04	Printer cartridge 05A	2	No		
4.05	Letter head quality paper as CONQUERER or equal and approved blue 80g/cm3	2	Ream		
4.06	A4 size, Transluscent PVC covers as KATKO or approved equivalent, 100 sheets blue in colour and 0.2mm thick	1	pkts		
4.07	A4 size, Embossed covers as KATKO or approved equivalent, 100 sheets blue in colour	1	pkts		
4.08	22mm diameter spiral binders black in colour	2	PKTS		
4.09	2 Terabyte portable external hard disc as HP/Toshiba/Dell	1	No		
4.10	Apple iPhone 7 Plus 5.5' Display, Memory 128GB/ 3GB RAM	1	No		
<b>SUB TOTAL C/F TO MAIN SUMMARY PAGE</b>					

**MAIN SUMMARY**

ITEM	DESCRIPTION	AMOUNT(KSHS)
A	Sub total B/F from Bill No. 1 Page No H/5 : - <b>PRELIMINARIES</b>	
B	Sub total B/F from Schedule No.1 Page No H/11 : - <b>Lower ground</b>	
C	Sub total B/F from Schedule No.2 Page No H/16 : - <b>Ground Floor</b>	
D	Sub total B/F from Schedule No.3 Page No H/21 : - <b>1st,2nd &amp; 3rd Floors</b>	
E	Sub total B/F from Schedule No.4 Page No H/22 : - <b>SMATV</b>	
F	Sub total B/F from Schedule No.5 Page No H/23 : - <b>Lightning Protection</b>	
G	Sub total B/F from Schedule No.6 Page No H/24 : - <b>Engineer's Stationery</b>	
H	Price for AS INSTALLED DRAWING	
I	Contingency	<b>1,500,000.00</b>
<b>TOTAL CARRIED FORWARD TO FORM OF TENDER.</b>		
<b>SAY</b>		

Total Amount in Words Kenya Shillings.....

.....

Tenderer's Name and Stamp.....

.....

Signature..... Date.....

PIN No.....VAT Certificate No.....

Witness..... Address.....

Signature of witness..... Date.....

SECTION I

TECHNICAL SCHEDULE

OF

ITEMS TO BE SUPPLIED

## TECHNICAL SCHEDULE

1. The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders, especially where the tenderer intends to supply or has based his tender sum on equipment which differs in manufacture, type or performance from the specifications indicated by the Project Manager.
2. This schedule shall form part of the technical evaluation criterion, and tenderers are therefore advised to complete the schedule as they shall be considered responsive.



**TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED**

(To be completed by the Tenderer)

ITEM	DESCRIPTION	TYPE/MAKE	MODEL	COUNTRY OF ORIGIN
1	LIGHTING FITTINGS <ul style="list-style-type: none"><li>❖ Fluorescent fitting</li><li>❖ Fluorescent bulkhead fitting</li><li>❖ tungsten bulkhead luminaire</li><li>❖ Compact Fluorescent fitting</li></ul>			
2	Lighting Switches			
3	D.P Swithes			
4	Socket outlet plates			
5	TV outlet plates			
6	Manual fire break glass unit			
7	Copper tape			
8	Consumer Units/ Distribution Boards			
9	MCB			
10	MCCB			
11	Cables <ul style="list-style-type: none"><li>❖ single core PVIC Copper</li><li>❖ Armoured Copper (PVC/SWA/PVC)</li></ul>			
12	PVC conduits			

SECTION J

STANDARD FORMS

## CONTENTS OF SECTION J

	<u>TITLE</u>	<u>PAGE</u>
1.	Performance Bank Guarantee	J/1
2.	Form of Agreement	J/2-J/3
3.	Tender Questionnaire	J/4
4.	Confidential Business Questionnaire	J/5 -J/6
5.	Key Personnel	J/7
6.	Schedule of Contracts completed in the last five (5) years	J/8
7.	Schedule of on-going projects	J/9
8.	Contractor's Equipment and Transport	J/10
9.	Financial Reports for the last three (3) years	J/11
10.	Evidence of Financial Resources to Meet Qualification Requirements	J/12
11.	Bidder's Bank Information	J/13
12.	Details of Litigation or Arbitration Proceedings	J/14
13	Commissioning Guide for Electrical Installation works	J/15 - J/20

**NOTE:**

Tenderers must duly fill these Standard Forms as a mandatory requirement as they will form part the evaluation criteria.

**PERFORMANCE BANK GUARANTEE**

**To:** The Chief Officer,  
Department of Health,  
P.O. Box 120-60200,  
MERU.

Dear Sir,

WHEREAS ..... (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. .... dated ..... to execute ..... (hereinafter called “the Works”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognised bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of:

Kshs. .... (*amount of Guarantee in figures*)

Kenya Shillings ..... (*amount of Guarantee in words*),

and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of Kenya Shillings ..... (*amount of Guarantee in words*) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

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

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR .....

Name of Bank .....

Address .....

Date .....

**FORM OF AGREEMENT**

THIS AGREEMENT, Made the.....day  
of.....between  
.....of  
.....(or whose registered office is situated at) (herein  
after called “the Employer”) of the one part AND ..... of  
.....(or whose registered office is situated at) (herein after called “the  
Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes  
.....  
.....(Name and identification number of contract) (herein after called “the  
Works”) located at .....  
..... (place/location of the Works) and the Employer has  
appointed .....  
Of ..... (or whose registered office is  
situated at)  
as the.....for the purposes  
thereof and has accepted the tender submitted by the Contractor for the execution and  
completion of the said works and the remedying of any defects therein in the sum of  
Kshs.....(amount in figures) Kenya  
Shillings.....  
.....  
(Amount in words) (herein after called “the Contract price”).

NOW THAT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as respectively assigned to them in the conditions of Contract herein after 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
  - (iv) Specifications
  - (v) Priced Bills of Quantities
  - (vi) Drawings

3. In consideration of the payments to be made by the Employer to the Contractor as herein mentioned, the contractor hereby covenants with the Employer to execute and complete the Works and any defects therein in conformity in all respects with the provision of the contract.

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

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

The common Seal of \_\_\_\_\_

Was hereunto affixed in the presence of \_\_\_\_\_

Signed, Sealed and Delivered by the said \_\_\_\_\_

Binding Signature of Employer. \_\_\_\_\_

Date \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_

Date \_\_\_\_\_

Witnessed by: 1) Name: \_\_\_\_\_

Address: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

2) Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

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. Telex/Fax Address 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

Make copy and deliver to:

The Works Secretary,  
State Department of Public Works,  
P.O. Box 30743 - 00100,  
**NAIROBI**

**CONFIDENTIAL BUSINESS QUESTIONNAIRE**

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

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

***Part 1 – General***

Business Name .....

Location of business premises:      Country/Town.....

Plot No..... Street/Road .....

Postal Address..... Tel No.....

Nature of Business.....

Current Trade Licence No..... Expiring date.....

Maximum value of business which you can handle at any time:

Kenya Shillings.....

Name of your bankers.....

Branch.....

Address.....Telephone.....

***Part 2 (a) – Sole Proprietor***

Your name in full..... Age.....

Nationality..... Country of Origin.....

Citizenship details .....

***Part 2 (b) – Partnership***

*Give details of partners as follows:*

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>	<i>Shares</i>
1.	.....	.....	.....	.....
2.	.....	.....	.....	.....
3.	.....	.....	.....	.....
4.	.....	.....	.....	.....



**Part 2(c) – Registered Company**

Private or Public .....

State the nominal and issued capita of the company:

Nominal KShs. ....

Issued KShs. ....

*Give details of all directors as follows:*

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>	<i>Shares</i>
1.	.....	.....	.....	.....
2.	.....	.....	.....	.....
3.	.....	.....	.....	.....
4.	.....	.....	.....	.....

**Part 2(d) – Interest in the Firm:**

Is there any person/persons in the employment of the Government of Kenya WHO has interest in this firm? Yes/No ..... (Delete as necessary)

I certify that the above information is correct.

.....

Title

.....

Signature

.....

Date

\* *Attach proof of citizenship*

**KEY PERSONNEL**

Qualifications and experience of key personnel proposed for administration and execution of the Contract.

<b>POSITION</b>	<b>NAME</b>	<b>HIGHEST QUALIFICATION</b> <i>(Attach proof)</i>	<b>YEARS OF EXPERIENCE (GENERAL)</b>	<b>YEARS OF EXPERIENCE IN PROPOSED POSITION</b>

I certify that the above information is correct.

.....  
Title

.....  
Signature

.....  
Date

**CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS**

Work performed on works of a similar nature, complexity and volume over the last 5 years.

PROJECT NAME	NAME OF CLIENT	TYPE OF WORK AND YEAR OF COMPLETION	VALUE OF CONTRACT (Kshs.)

I certify that the above works were successfully carried out and completed by ourselves.

.....

.....

.....

Title

Signature

Date

**SCHEDULE OF ON-GOING PROJECTS**

Details of on-going or committed projects, including expected completion date.

PROJECT NAME	NAME OF CLIENT	CONTRACT SUM	% COMPLETE	COMPLETION DATE

I certify that the above works are currently being carried out by ourselves.

.....

Title

.....

Signature

.....

Date

**SCHEDULE OF MAJOR ITEMS OF CONTRACTOR'S EQUIPMENT AND TRANSPORT  
PROPOSED FOR CARRYING OUT THE WORKS (Attach proof of ownership)**

ITEM EQUIPMENT	OF	DESCRIPTION, MAKE AND AGE (Years)	CONDITION (New, good, poor) and number available	OWNED, LEASED (From whom?), or to be purchased (From whom?)

**FINANCIAL REPORTS FOR THE LAST THREE YEARS**

(Balance sheets, Profits and Loss Statements, Auditor's reports, etc.  
List below and attach copies)

- 1. \_\_\_\_\_.
- 2. \_\_\_\_\_.
- 3. \_\_\_\_\_.
- 4. \_\_\_\_\_.
- 5. \_\_\_\_\_.
- 6. \_\_\_\_\_.
- 7. \_\_\_\_\_.
- 8. \_\_\_\_\_.
- 9. \_\_\_\_\_.
- 10. \_\_\_\_\_.

**EVIDENCE OF FINANCIAL RESOURCES TO MEET QUALIFICATION REQUIREMENTS**

*(Cash in hand, Lines of credit, e.t.c. List below and attach copies of supportive documents)*

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_
- 6. \_\_\_\_\_
- 7. \_\_\_\_\_
- 8. \_\_\_\_\_
- 9. \_\_\_\_\_
- 10. \_\_\_\_\_

**BIDDER'S BANK INFORMATION**

(This information is mandatory and should be for banks to provide reference if contacted by employer)

NAME OF BANK	BANK BRANCH	ACCOUNT NAME	ADDRESS	TELEPHONE



**DETAILS OF LITIGATION OR ARBITRATION PROCEEDINGS IN WHICH THE TENDERER HAS BEEN INVOLVED AS ONE OF THE PARTIES IN THE LAST 5 YEARS**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_



Code: E/CG/01

REPUBLIC OF KENYA

STATE DEPARTMENT OF PUBLIC WORKS

ELECTRICAL & MECHANICAL (BS) ENGINEERING DEPARTMENTS

TESTING & COMMISSIONING GUIDE

FOR

ELECTRICAL INSTALLATION WORKS ON SITE

**Issued by:**

The Chief Engineer (Electrical),  
State Department of Public Works,  
P. O. BOX 41191 – 00100 GPO,  
NAIROBI.

**STATE DEPARTMENT OF PUBLIC WORKS**

**ELECTRICAL DEPARTMENT**

**TESTING AND COMMISSIONING OF ELECTRICAL INSTALLATION WORKS ON SITE.**

**PROJECT NAME**.....  
 .....

**W.P ITEM No**.....**JOB No**.....

The sub contractor shall test in accordance with the relevant section of IEE regulations, Rule 3 of the Electrical Power Act for additional tests not covered by the regulations, Government Electrical specifications I & II and the Kenya Power & Lighting Co. Ltd by-laws.

**A PRELIMINARY CHECKS**

The Engineer shall check to establish the following data:-

ITEM	DESCRIPTION		REMARKS
(i)	Type of installation (New/Renovation/Addition/ to existing installation)		
(ii)	a) Power supply 240V/415V/11KV		.....
	b) Frequency of the mains supply		.....
	c) Installation power factor		.....
(iii)	Method of Metering (New /Monitoring/Existing meter)		
(iv)	Are Testing/Measuring instruments available		
(v)	Are there maintenance/operational manuals for specialized systems (if any)		
(vi)	List of 'as installed drawings'	Drg No.	Description

**B TESTS**

ITEM	TEST DESCRIPTION	OBSERVATIONS/ RESULTS	REMARKS
1	<b>Tests shall be carried out to ensure:</b>		
	a) All fuses and single pole switches are installed in live conductor		
	b) All outlets and switched socket outlets are connected to 'LIVE' conductor in the Terminal marked so and each earth pin effectively bonded to earth continuity system		
	c) Verify continuity of all final conductors of each 'Ring' circuit. <b>(0.05 to 0.8Ω)</b>	.....Ohms	
	d) All radial circuits emanate from respective distribution boards/consumer units and that they do not supply any other Equipment		
	e) The correct phase sequence is maintained throughout the installation		
	f) Effective 'Discrimination' in the arrangement of protective devices. i.e. a fault in the furthest power point/Lighting point should not blow or trip Fuses/MCBs respective in the Meter board.		
2	<b>Inspect to ensure:</b>		
	a) No terminal in the Ceiling Rose is 'LIVE' when the corresponding switch is in the off position.		
	b) All conduit termination conduit boxes, Consumer unit, DB's and Adaptable boxes have smooth edges and are properly bushed.		
	c) All fixed metal works close to Electrical installation are bonded to earth continuity conductor.		
	d) All Fuse ways and Circuit breakers for final sub circuits are properly labeled		

**B TESTS CONT'D**

ITEM	TEST DESCRIPTION	OBSERVATIONS/ RESULTS	REMARKS	
<p><b>3</b></p>	<p><b>Carry out the following tests:</b></p> <p>a) Insulation Resistance tests</p> <p>    i) Between phases</p> <p>        a) R -Y            .....MΩ</p> <p>        b) R -B            .....MΩ</p> <p>        c) B-Y            .....MΩ</p> <p>    ii) Phase to Neutral</p> <p>        a) R - N            .....MΩ</p> <p>        b) R - N            .....MΩ</p> <p>        c) B - N            .....MΩ</p> <p>    iii) Phase to Earth</p> <p>        a) R - E            .....MΩ</p> <p>        b) R -E            .....MΩ</p> <p>        c) B -E            .....MΩ</p> <p><b>Minimum thresholds for above and for:</b></p> <p>    i) ELV circuits (SELV &amp; PELV) = 0.25 MΩ</p> <p>    ii) LV Circuits up to 500V = 0.5 MΩ</p> <p>    iii) LV Circuits above 500V = 1 MΩ</p>			
	<p>b) Earth continuity conductor impedance <b>(0.005 to 2Ω)</b></p>	<p>.....Ohms</p>		
	<p>c) Earth fault Loop impedance <b>(0 - 2000 Ω)</b></p>	<p>.....Ohms</p>		
	<p>d) Earth Electrode resistance <b>(Less than 4Ω)</b></p>	<p>.....Ohms</p>		
	<p>e) Earth Lead resistance <b>(Less than 4Ω)</b></p>	<p>.....Ohms</p>		
	<p>f) The operation of protection MCCBS &amp; MCBS (Tripping under faulty conditions)</p>			
	<p>g) Check the mechanical toggling (make &amp; break) of all the switches to installed accessories.</p>			
	<p><b>4</b></p>	<p><b>Underground cabling, Check for:</b></p>		
		<p>i) Continuity of the phases</p>		
<p>ii) Factory tests done (avail certification)</p>				
<p>iii) Proper termination</p>				
<p>iv) Route markers</p>				

**B TESTS CONT'D**

ITEM	TEST DESCRIPTION	OBSERVATIONS/ RESULTS	REMARKS																								
5	<b>Installed load</b> i) Lighting points (No.) ii) Socket outlets (No.) iii) Motors (Give rating) iv) Other machines (Attach list if more)																										
	<table border="1"> <thead> <tr> <th data-bbox="302 432 406 474">Item</th> <th data-bbox="406 432 818 474">Description</th> <th data-bbox="818 432 967 474">Rating</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Item	Description	Rating																							
	Item	Description	Rating																								
6	<b>Type of Earthing:</b> TN-C/TN-S/ TN-C-S/TT/IT.																										
7	<b>LV switchboard:</b> The board shall be checked to ascertain the following																										
	i) Rating of the switchboard																										
	ii) Rating of main incomer MCCB																										
	iii) Form of construction (1/2B/3B/4)																										
	iv) Degree of protection (IP rating)																										
	v) Nameplates for identification of all circuits entering/leaving switchgear																										
	vi) Proper Electrical & Mechanical operation of functional parts i.e MCCBs, Indicating meters, CTs & VTs .																										
	vii) Check cable terminations, type & terminals																										
viii) General comments on the appearance of the finished mechanical assembly including welding, full nuts & tightness of bolted parts.																											
8	<b>Fireman's switch.</b>																										
	i) Make and manufacturer																										
	ii) The rating of the switch																										
	iii) Test for the Electrical and Mechanical operation of the switch																										
	iv) State the types of loads supported by the maintained board on the switch.																										
<b>** see foot note</b>																											

