



**KENYA NATIONAL BUREAU OF STATISTICS
P.O.BOX 30266-00100
NAIROBI**

TENDER NO.KNBS/ONT/02/2018-2019

FOR

**SUPPLY, DELIVERY AND INSTALLATION OF AIR
CONDITIONING, DATA CENTER WORKS,
PLUMBING & DRAINAGE AND ASSOCIATED
WORKS FOR KNBS LEASED OFFICES AT REAL
TOWERS, UPPERHILL AREA – NAIROBI**

**RESERVED FOR SPECIAL GROUPS (YOUTH,
WOMEN AND PWDs CATEGORY)**

**CLOSING DATE: 21ST AUGUST, 2018 AT
10:00AM**

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SECTION I: INVITATION TO TENDER

TENDER REF. NO. KNBS/ONT/02/2018 – 2019

DATE: 7TH AUGUST, 2018

TENDER NAME SUPPLY, DELIVERY AND INSTALLATION OF AIR CONDITIONING, DATA CENTER WORKS, PLUMBING & DRAINAGE AND ASSOCIATED WORKS FOR THE KNBS LEASED OFFICE AT REAL TOWERS, UPPERHILL AREA– NAIROBI

- 1.1 The Kenya National Bureau of Statistics invites sealed tenders from eligible candidates for tender for the **Supply, Delivery and Installation of Air Conditioning, Data Center Works, Plumbing & Drainage and Associated Works for the KNBS Leased Office at Real Towers, Upper hill Area – Nairobi**
- 1.2 Eligible Tenderers may obtain further information and inspect/download the Tender Document free of charge from the National Treasury Integrated Financial Management Information System (IFMIS) supplier portal (<https://supplier.treasury.go.ke>) and /or Kenya National Bureau of Statistics website; www.knbs.or.ke under “Tenders” portal.
- 1.3 A complete set of Tender Document(s) can be obtained/purchased by the eligible tenderers at the Procurement Office, KNBS - upon payment of a non-refundable fee of **KShs.1,000.00**. Payment should be made to the Cashier at the Accounts Department at Kenya National Bureau of Statistics. Those who download the document must immediately forward their particulars (i.e. Name & Contacts of Applicant) to email; procurement@knbs.or.ke for purposes of registration, receiving any other clarifications and/or addendums.
- 1.4 Completed Tender document plus **one copy** should be enclosed in plain sealed envelopes marked with tender reference number and be deposited in the Tender Box at 1st Floor of the Kenya National Bureau of Statistics – Herufi House or be addressed to:-

**The Director General
Kenya National Bureau of Statistics
P. O. Box 30266-00100,
NAIROBI**

so as to be received on or before **21st August, 2018 at 10.00 am.**

- 1.5 Prices quoted should be net inclusive of all taxes and delivery and must be in Kenya Shillings and shall remain valid for 120 days from the closing date of the tender.
- 1.6 Bid security is NOT a requirement for this tender
- 1.7 Tenders will be opened immediately thereafter in the presence of the Candidates or their representatives who choose to attend at **KNBS Conference Room- Herufi House, 1st Floor.**

- 1.8 There will be a mandatory Site visit and Pre-bid conference for all prospective bidders on **14th August, 2018 from 9.00am at Real Towers, Upper Hill, Nairobi.**

SENIOR MANAGER, PROCUREMENT
FOR: KENYA NATIONAL BUREAU OF STATISTICS

REGISTRATION FORM FOR ONLINE TENDERERS/BIDDERS/SUPPLIERS

Tender No.: KNBS/ONT/21/2017-2018 – Supply, Delivery and Installation of Air Conditioning, Data Center Works, Plumbing & Drainage, and Associated Works for the KNBS Leased Offices at Real Towers, Upper Hill Area – Nairobi

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

Name of the firm:.....

Postal Address:.....

Physical Location:

.....

Telephone/Mobile Contacts:.....

Company E-mail address:.....

Contact Person:.....

Once completed please submit this form to the email below;

procurement@knbs.or.ke

DEFINITIONS

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

KNBS:	~	The Director General Kenya National Bureau of Statistics P.O Box 30266– 00100 NAIROBI
Project Manager:	~	Contract implementation committee assisted by Regional County Works Officer, Nairobi
Engineer:	~	County Electrical and Mechanical Engineer (Building Services) State Department of Public Works County Works Office P. O. Box 42267 <u>NAIROBI</u>
Employer's Representative:	~	Shall mean contract implementation Committee
Contractor:	~	The Firm appointed to carry out the Works.
Site:	~	The site for the proposed works is at Kenya National Bureau of Statistics at Real Towers, Nairobi

SECTION II- INSTRUCTIONS TO TENDERERS

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SECTION II - 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.

1. 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 KNBS.
- (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 are eligible to bid.

2.2 To be eligible for award of Contract, the tenderer shall provide evidence satisfactory to KNBS 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 KNBS 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 **MUST** 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 Tenderer **MUST** sign *'The Certificate of Tenderer's Visit to the Site' form* (Under Standard Forms). 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 KNBS 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 KNBS 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 KNBS shall organize a site visit at a date to be notified. A representative of KNBS will be available to meet the intending tenderers at the Site.
- 4.4 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.

5. TENDER DOCUMENTS

- 5.1 The Tender documents comprise the documents listed here below 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 KNBS in writing or by telex, cable or facsimile at KNBS's mailing address indicated in the Invitation to Tender. KNBS 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 KNBS'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 KNBS 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, KNBS 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, KNBS 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 KNBS 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 Quantities 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 KNBS 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. KNBS 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 KNBS 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 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, KNBS 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 KNBS 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 KNBS. 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 KNBS 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 KNBS 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 KNBS 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 be a 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 KNBS 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, KNBS will assume no responsibility for the misplacement or premature opening of the tender. A tender opened prematurely for this cause will be rejected by KNBS and returned to the tenderer.

18. Deadline for Submission of Tenders

- 18.1 Tenders must be received by KNBS at the address specified in clause 17.2 and on the date and time specified in the Invitation to Tender, 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 KNBS.

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 KNBS 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 KNBS 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 KNBS 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 KNBS 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 KNBS, and the tenderer having not been notified by KNBS of the award of the Contract or the tenderer does not intend to conform with the request of KNBS to extend the prior 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 KNBS will open the tenders in the presence of the tenderers' representatives who choose to attend at the time and location indicated in the 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. KNBS 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, KNBS 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 KNBS, at his discretion, may consider appropriate. No tender shall be rejected at the tender opening except for late tenders.

20.4 KNBS shall prepare minutes of the tender opening including the information disclosed to those present.

20.5 Tenders not opened and read out at 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 KNBS 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, KNBS 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 email, 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 KNBS during the evaluation of the tenders in accordance with clause 24.

22.2 No Tenderer shall contact KNBS 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 KNBS, he shall do so in writing.

23. Determination of Responsiveness

23.1 Prior to the detailed evaluation of tenders, KNBS 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,

KNBS'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 KNBS'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 KNBS and may not subsequently be made responsive by the tenderer by correction of the non-conforming deviation or reservation.

24. Correction of Errors

- 24.1 Tenders determined to be substantially responsive shall be checked by KNBS for any arithmetic errors in the computations and summations. Errors will be corrected by KNBS 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 KNBS, 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 KNBS 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 KNBS 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, KNBS 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 KNBS 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 KNBS, 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 KNBS's estimate of the items of work to be performed under the Contract, KNBS 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, KNBS 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 KNBS 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, KNBS 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 KNBS reserves the right to accept or reject any tender, and to annul 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 KNBS's action.

28. Notification of Award

- 28.1 Prior to the expiration of the period of tender validity prescribed by KNBS, KNBS 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 KNBS 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 KNBS, the successful tenderer shall sign the form and return it to KNBS together with the required Performance Security.

29. Performance Guarantee

- 29.1 Within twenty eight [28] days of receipt of the notification of award from KNBS, the successful tenderer shall furnish KNBS 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 KNBS 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 KNBS may award the Contract to the next ranked tenderer.

30. Advance Payment

An advance payment, if approved by KNBS, shall be made under the Contract, if requested by the Contractor, in accordance with clause 33.1 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 KNBS.

SECTION III- TENDER EVALUATION CRITERIA

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

STAGE 1: PRE-LIMINARY EVALUATION

No.	Completeness and Responsiveness Criteria	Requirement
1.	Form of Tender	~ Amount must be indicated ~ Properly fill and sign
2.	Confidential Business Questionnaire	~ Properly filled, sign and stamped ~ Provide all required information
3.	Form of Power of Attorney	~ Properly fill and sign ~ Provide copies of National Identification card or Passport. ~ Certified Copy of Form CR12
4.	Valid Tax Compliance Certificate	~ Provide a Valid Copy
5.	Valid Business Permit/ Trade License	~ Copy of Single Business Permit/Trade License
6.	Copy of Access Government Procurement Opportunity (<u>AGPO under ICT Services and /or Small Works Engineering Category</u>) Certificate from the National Treasury	~ Attach a copy of the <u>AGPO under ICT and/or Small Works Engineering category</u> Certificate and should be certificate Certified by Commissioner of Oaths
7.	Registration with National Construction Authority	~ Category NCA 5 and above, Mechanical Engineering Works. ~ Copy of Certificate should be Certified by Commissioner of Oaths
8.	Certificate of Incorporation	~ Copy of Certificate Certified by Commissioner of Oaths
9.	Debarment	~ Declaration stating that the firm is NOT been debarred by Public Procurement Regulatory Authority (PPRA).
10	Anti-corruption declaration commitment	~ Submit a Signed Declaration statement that the firm will not be involved in corrupt or fraudulent practices.
11	Certificate of Tenderers Visit to Site	~ Bidders to sign attendance register ~ Certificate must be signed and stamped by the KNBS
12	Copy of Bid Document	~ Replica of the original
13	Serialization of pages by bidders for each Bid submitted	It should be done page by page in progressive manner

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

STAGE 2: TECHNICAL EVALUATION

Stage II (A): ~ Technical Evaluation Stage

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

Stage II -Technical Evaluation Criteria

No	Parameter	Max Points
1	Key Personnel	14
2	Contract Completed in the last Five (5) Years	12
3	Schedule of on-going projects	5
4	Schedule of contractors equipment	5
5(a)	Audited Financial Report for the last 3 years (2015, 2016 & 2017)	9
(b)	Evidence of Financial Resources	10
(c)	Name, Address and Telephone of Banks	2
6	Litigation History	5
7	Compliance to project completion time	10
8	Provision of detailed work program and Methodology	25
9	Firm Reputation	3
	TOTAL	100

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

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

Item	Description	Raw Points Scored	Max Points
1	Key Personnel		
	Attach Evidence i.e. CVs and certified copies of <u>Annual Practicing Licenses (for Engineers)</u> and <u>Academic Certificates</u> for other staff. The site staff shall possess minimum levels set below: -		14
a	Director of the firm		
i	With over 6 years' experience in Mechanical Engineering		6
ii	With over 3 years' experience in Mechanical Engineering		3
iii	With over 2 years' experience in Mechanical Engineering		2
iv	Less than 2 years' experience in Mechanical Engineering		1
b	2No. Degree/Diploma holders of key personnel in Mechanical Engineering		
i	With over 4 years in Mechanical Engineering		4
ii	With over 3 years in Mechanical Engineering		3
iii	With under 2 years in Mechanical Engineering		2
c	4 No. Certificate holder of other key personnel in mechanical engineering and/or artisan with trade test certificate in relevant field		
i	With over 4 years in Mechanical Engineering		4
ii	With over 3 years in Mechanical Engineering		3
iii	With under 2 years in Mechanical Engineering		2
2	Provide Evidence of at least TWO projects of Relevant Contracts completed in the last Five (5) years i.e. Copies of <u>contract agreements/ Completion certificates, LPOs/ LSOs</u>		12
a	Above Kshs. 50 Million (6 marks for each projects)		
b	Kshs 30 Million - (4 marks for each project)		
c	Kshs 20 Million - (3 mark for each project)		
3	TWO on-going projects and their values <u>Provide Evidence</u>		5
4	Schedule of contractors equipment and transport (proof or evidence of ownership/Lease)		
	The Bidder must indicate the core equipment necessary for undertaking the project together with proof ownership or lease arrangements) Equipment's/Plant		5
5	Financial report		
	Audited financial report (last three (3) years)		
A	Provide Audited Accounts for 2017, 2016, 2015 - (3 Mks)		3
I	Average Annual Turn-over equal to or greater than the annual Expected Turnover of the project		6
Ii	Average Annual Turn-over above 50% but below 100% of the cost of the project		5

Item	Description	Raw Points Scored	Max Points
iii	Average Annual Turn-over below 50% of the cost of the project		4
	<u>NB:- capacity to have a cash flow equivalent to 20% of the tender sum</u>		
b	Evidence of Financial Resources (cash in hand, lines of credit, over draft facility, etc.)		10
i	Has financial resources to finance the projected monthly cash flow* for three months		10
ii	Has financial resources equal to the projected monthly cash flow*		8
iii	Has financial resources less the projected monthly cash flow*		5
iv	Has not indicated sources of financial resources		0
c	Name, Address and Telephone of Banks		2
6	Litigation History		5
	Duly Filled - 5		5
	Not filled - 0		0
7	Compliance to Project completion time		10
i	25 weeks and below		10
ii	Between 25-30 weeks		8
iii	Above 30 weeks		5
8	Provision of detailed work program and methodology as required as instructed in Schedule 12 (Work Methodogy)		25
9	Firm Reputation:- Proof of Satisfactory Service:- Submit at least THREE (3) letters of reference from major clients, which should include summary of services rendered, value of contracts and contact person, address and telephone numbers (1mk for each complete letter, max 3).		3
	TOTAL		100

NB: - A bidder scoring less than 70% shall not be considered technically responsive and therefore shall not be considered for further evaluation.

STAGE II (B) ~ TECHNICAL SPECIFICATION

Tenderers will be required to score 70% and above in Stage II (A) of the technical evaluation criteria, for them to proceed to Stage II (B) below.

PRODUCT EVALUATION/ COMPLIANCE WITH TECHNICAL SPECIFICATIONS (ATTACHMENT OF RELEVANT CATALOGUES/BROCHURES/TECHNICAL DATA SHEETS)

In this section, the bid will be analyzed to determine compliance with General and Particular Technical Specifications for the works as indicated in the tender document.

The tenderer shall fill in the Technical Schedule of items to be supplied as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer of the Item/Equipment they propose to supply.

Where the Equipment proposed by the tenderer differs with the models/specifications outlined in the tender document, it is mandatory that the brochures/catalogues/data sheets of the same be submitted with the tender document highlighting the catalogues Numbers of the proposed items.

Such brochures/catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include but not limited to the following:-

- i. Standards of manufacture
- ii. Performance ratings/characteristics
- iii. Material of manufacture
- iv. Electrical power ratings
- v. Any other necessary requirements

DETAILED TECHNICAL EVALUATION

In this section, the information provided in **Stage 'II (A)'** above will be analyzed in detail against the technical specifications, performance characteristics or specific requirements of each or selected equipment/ devices proposed by the tenderer.

No	Technical Evaluation	Weight	Score
a)	Filled Technical Schedule of items to be supplied	40	
b)	Models of items to be supplied are the same as specified in the technical specifications.	60	
	“OR”		
a)	Filled Technical Schedule of items to be supplied and Provision of brochures/catalogues/data sheets for the same	40	
b)	Detailed analysis of brochures/catalogues/data sheets provided against the technical specifications, performance	60	

No	Technical Evaluation	Weight	Score
	characteristics or specific requirements of each or selected equipment/ devices proposed by the tenderer.		
	Total	100	

NB: ~ Any bidder scoring less than **70% SHALL NOT** proceed to the next Stage (Financial Evaluation)

STAGE III ~ FINANCIAL EVALUATION

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

Financial Score = Lowest Responsive Bidder / Bidder Price (under consideration)
X 30

Combined scores

Total Combined Score = Weighted Technical score + Weighted Financial Score.

Recommendation for Award

The bidder with the **LOWEST EVALUATED BID Shall Be Recommended For Award.**

STAGE IV ~ DUE DILIGENCE

The Evaluation Committee may agree to conduct a post qualification evaluation to the **MOST RESPONSIVE CONTRACTOR** on projects done and also to ascertain the above information given.

SECTION IV - 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 KNBS 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 KNBS.

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

“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 KNBS 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 KNBS and notified to the Contractor for the purpose of supervision of the Works.

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

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

2. Interpretation

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.

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).

The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority;

- (i) Agreement,
- (ii) Letter of acceptance,
- (iii) Contractor's Tender,
- (iv) Appendix to Conditions of Contract,
- (v) Conditions of Contract,
- (vi) Specifications,
- (vii) Drawings,
- (viii) Bills of Quantities,
- (ix) 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 KNBS 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 KNBS) with three ({3} copies of such further drawings or details or descriptive schedules as are reasonably necessary either to explain or amplify the Contract drawings or to enable the Contractor to carry out and complete the Works in accordance with these Conditions.

3. Language and Law

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

4. Project Manager's Decisions

Except where otherwise specifically stated, the Project Manager will decide contractual matters between KNBS and the Contractor in the role representing KNBS.

5. Delegation

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

6. Communications

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

7. Subcontracting

The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of The Director General of KNBS in writing. Sub-contracting shall not alter the Contractor's obligations.

8. Other Contractors

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

9. Personnel

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

10. Works

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

11. Safety and Temporary Works

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.

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. The Contractor shall be responsible for the safety of all activities on the Site.

12. Discoveries

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

13. Work Program

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

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

14. Possession of Site

KNBS 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, KNBS will be deemed to have delayed the start of the relevant activities, and this will be Compensation Event.

15. Access to Site

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. Instructions

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

17. Extension of Acceleration of Completion Date

The Project manager shall extend the Intended Completion Date if a Compensation Event occurs or a variation is issued which makes it impossible for completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost. The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager in writing for a decision upon the effect of a Compensation Event or variation and submitting full supporting

information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay caused by such failure shall not be considered in assessing the new (extended) Completion Date.

No bonus for early completion of the Works shall be paid to the Contractor by KNBS

18. Management Meetings

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 KNBS. The responsibility of the parties for actions to be taken shall be decided by the Project manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

19. Early Warning

The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the Work increase the Contract Price or delay the execution of the Works. The Project Manager may 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.

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. Defects

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.

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.

Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Project Manager's notice. If the Contractor has not corrected a defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

21. Bills of Quantities

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.

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.

If requested by the Project Manager, the Contractor shall provide the Project manager with a detailed cost breakdown of any rate in the Bills of Quantities.

22. Variations

All variations shall be included in updated programs produced by the Contractor.

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.

If the work in the variation corresponds with an item description in the Bills of Quantities and if in the opinion of the Project Manager, the quantity of work is not above the limit stated in Clause 21.2 or the timing of its execution does not cause the cost per unit of quantity to change, the rate in the Bills of Quantities shall be used to calculate the value of the variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the variation does not correspond with items in the Bills of Quantities, the quotation by the contractor shall be in the form of new rates for the relevant items of work.

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

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.

The Contractor shall not be entitled to additional payment for cost that could have been avoided by giving early warning. When the Program is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.

23. Payment Certificates, Currency of Payments and Advance Payments

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.

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 KNBS once KNBS 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.

Payments shall be adjusted for deductions for retention. KNBS shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of issue of each certificate. If KNBS 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.

If an amount certified is increased in a later certificate of 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.

Items of the works for which no rate or price has been entered in will not be paid for by KNBS and shall be deemed covered by other rates and prices in the Contract.

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. KNBS reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services.

KNBS 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.

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 KNBS 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
X¹ = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This will exceed 20% but not exceed 80%.

X¹¹ = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

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

24. Compensation Events

The following issues shall constitute Compensation Events.

- a) KNBS does not give access to a part of the site by the Site Possession Date stated in the Appendix to Conditions of Contract.
- b) KNBS modifies the List of Other Contractors, etc., in a way that affects the Work of the Contractor under the Contract.
- c) The Project Manager orders a delay or does not issue drawings, specifications or instructions required for execution of the works on time.
- d) The Project Manager instructs the contractor to uncover or to carry out additional tests upon the work, which is then found to have no defects.
- e) The Project Manager unreasonably does not approve a subcontract to be let.
- f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to tenderers (including the site investigation reports), from information available publicly and from a visual inspection of the site.
- g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by KNBS or additional works required for safety or other reasons.
- h) Other contractors, public authorities, utilities, or KNBS 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 KNBS'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

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.

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.

The Contractor shall not be entitled to compensation to the extent that KNBS's interests are adversely affected by the Contractor not having given early warning or not having co-operated with the Project Manager.

Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the Appendix to Conditions of Contract.

The Contractor shall give written notice to the Project Manager of his intention to make a claim within thirty days after the event giving rise to the claim has first arisen. The claim shall be submitted within thirty days thereafter.

Provided always that should the event giving rise to the claim of continuing effect, the Contractor shall submit an interim claim within the said thirty days and a final claim within thirty days of the end of the event giving rise to the claim.

25. Price Adjustment

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.

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.

Unless otherwise stated in the Contract, the Contract Price shall be deemed to have been calculated in the manner set out below and in sub-clauses 25.4 and 25.5 and shall be subject to adjustment in the events specified thereunder;

- i) The 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.

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.

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.

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.

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. Retention

KNBS 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. Liquidated damages

The Contractor shall pay liquidated damages to KNBS 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. KNBS may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not alter the Contractor's liabilities.

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

28. Securities

The Performance Security shall be provided to KNBS 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 KNBS, and denominated in Kenya shillings. The Performance Security shall be valid until a date 30 days beyond the date of issue of the Certificate of Completion.

29. Dayworks

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

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

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

30. Liability and Insurance

From the Start Date until the Defects Correction Certificate has been issued, the following are KNBS'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 KNBS 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 KNBS or in Employer's design, or due to war or radioactive contamination directly affecting the place where the works are being executed.

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 KNBS'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 KNBS's risk.
- c) The activities of the Contractor on the Site after the Completion Date.

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 KNBS 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.

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.

If the Contractor does not provide any of the policies and certificates required, KNBS 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.

Alterations to the terms of insurance shall not be made without the approval of the Project Manager. Both parties shall comply with any conditions of insurance policies.

31. Completion and Taking over

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. KNBS shall take over the site and the works within seven (7) days of the Project manager's issuing a Certificate of Completion.

32. Final Account

The Contractor shall issue the Project Manager with a detailed account of the total amount that the Contractor considers payable to him by KNBS 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.

KNBS shall pay the Contractor the amount due in the Final certificate within 60 days.

33. Termination

KNBS 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 KNBS 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.

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.

Notwithstanding the above, KNBS may terminate the Contract for convenience.

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. Payment Upon Termination

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 KNBS exceeds any payment due to the Contractor, the difference shall be a debt payable by the contractor.

If the contract is terminated for KNBS's convenience or because of a fundamental breach of contract by KNBS, 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.

KNBS 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.

The contractor shall, during the execution or after the completion of the works under this clause remove from the site as and when required, within such reasonable time as the Project Manager may in writing specify, any temporary building, plant, machinery, appliances, goods or materials belonging to or hired by him, and in default KNBS 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 KNBS 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 KNBS 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 KNBS 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 KNBS to the Contractor.

35. Release from Performance

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

36. Corrupt gifts and Payment of Commission

The Contractor shall not;

- a) Offer or give or agree to give to any person in the service of KNBS any gift or consideration of any kind as an inducement or reward for doing or for bearing 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 KNBS or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract for KNBS.
- b) Enter into this or any other contract with KNBS 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 KNBS.
- c) 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. Settlement of Disputes

In case any dispute or difference shall arise between KNBS 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.

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.

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.

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.

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:

The appointment of a replacement Project Manager upon the said person ceasing to act. Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.

Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions. 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 KNBS 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 award of such Arbitrator shall be final and binding upon the parties.

SECTION V: - APPENDIX TO CONDITIONS OF CONTRACT

CONDITIONS OF CONTRACT

KNBS is: **Kenya National Bureau of Statistics**
Represented by: **The Director General**
Address: **P.O. Box 30266– 00100, NAIROBI**

Name of Employer's Representative: **Contract implementation committee assisted by the Regional County Works Officer, Nairobi.**

CONDITIONS OF CONTRACT

The Project Manager is: **KNBS Contract implementation committee to be assisted with the Regional County Works Officer, Nairobi.**

CONDITIONS OF CONTRACT

The name (and identification number) of the Contract is:-
Tender No. KNBS/ONT/02/2017-2018:- Supply, Delivery and Installation of Air Conditioning, Data Center Works, Plumbing & Drainage and Associated Works for the KNBS Leased Office, Real Towers Upper hill area – Nairobi

CONDITIONS OF CONTRACT

The Contract Works: **Supply, Delivery and Installation of Air Conditioning, Data Center Works, Plumbing & Drainage and Associated Works for the KNBS Leased Office, Real Towers Upper hill area – Nairobi**

CONDITIONS OF CONTRACT

The start date shall be **as stated in the Contract Document**

CONDITIONS OF CONTRACT

The Intended Completion Date for the whole of the Works shall be **as stated in the Contract Document**

CONDITIONS OF CONTRACT

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 Contract.**

CONDITIONS OF CONTRACT

The Site is located at: **Real Towers, Upper Hill**
P.O Box 30266– 00100,
NAIROBI

CONDITIONS OF CONTRACT

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

CONDITIONS OF CONTRACT

The Defects Liability Period is **12 months from practical completion date**

CONDITIONS OF CONTRACT

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

INSTRUCTION TO TENDERERS

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

INSTRUCTION TO TENDERERS

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

INSTRUCTION TO TENDERERS

Amount of Tender Security is **1% of the Contract Price**

INSTRUCTION TO TENDERERS

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

CONDITIONS OF CONTRACT

Liquidated and Ascertained damages: **at the rate of Kshs.2,000.00 per week or part thereof**

CONDITIONS OF CONTRACT

Period of honoring certificate:	45 days
Percentage of certified value retained	10%
Limit of certified value retained:	5%
Period between program updates is:	14 days

The implementation period for the contract works is: **as stated in the contract document or as decided in site handing over meeting.**

SECTION VI - 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 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 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 Contract Agreement

The contractor shall be required to enter into a contract with KNBS.

The Conditions of the Contract between the Contractor and KNBS 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 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:

Employer: The term “**Employer**” shall mean **The Director General, Kenya National Bureau of Statistics, P.O Box 30266– 00100, NAIROBI**

- i) **Architect:** The term “**Architect**” shall mean **The Project Architect**
- ii) **Quantity Surveyor:** The term “**Quantity Surveyor**” shall mean **The Project Quantity Surveyor**
- iii) **Civil/Structural Engineers:** The term “**Civil/Structural Engineers**” shall mean **The Project Structural Engineer.**
- v) **Engineer:** The term “**Engineer**” shall mean **Project Electrical Engineer (BS).**
- vi) **Contractor:** The term “**Contractor**” shall mean the firm or company appointed to carry out the Generator Installation works and shall include his or their heir, executors, assigns, administrators, successors, and duly appointed representatives.
- vii) **Contract Works:** The term “**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 contract and whether the same may be on site or not.
- viii) **Contract Drawings:** The term “**Contract Drawings**” shall mean those drawings required or referred to herein and forming part of the Bills of Quantities.
- ix) **Working Drawings:** The term “**Working Drawings**” shall mean those drawings required to be prepared by the contractor as hereinafter described.
- x) **Record Drawings:** The term “**Record Drawings**” shall mean those drawings required to be prepared by the contractor showing “as installed” and other records for the contract Works.
- xi) **Abbreviations:**
CM shall mean **Cubic Metre**
SM shall mean **Square Metre**
LM shall mean **Linear Metre**
LS shall mean **Lump Sum**

mm shall mean **Millimetres**
No. shall mean **Number**
Kg. shall mean **Kilogramme**
KNBS shall mean **Kenya National Bureau of Statistics**
BS shall mean. **Current standard British Standard Specification published by the British Standard Institution, 2 Park Street, London W1, England**

“Ditto” shall mean the whole of the preceding description in which it occurs. Where it occurs in description of succeeding item it shall mean the same as in the first description of the series in which it occurs except as qualified in the description concerned. Where it occurs in brackets it shall mean the whole of the preceding description which is contained within the appropriate brackets.

1.06 Site Location

The site of the Contract Works is situated at **Real Towers, Upper Hill Area- Nairobi** the conditions under which the 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 Contract

The Contractor shall be required to phase his work in accordance with the works programme (or its revision). The programme is to be agreed with the Project Manager.

1.08 Scope of Contract Works

The 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 contractor shall supply all accessories, whether of items or equipment supplied but to be fixed and commissioned under this contract.

1.09 Extent of the contractor's Duties

At the commencement of the works, the 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 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 contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and/or connection by the contractor 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 contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on site.

The 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 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 KNBS before the official opening.

1.12 Firm – Price contract

Unless specifically stated in the documents or the invitation to tender, this is a fixed price Contract and the 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 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 contract Works shall be carried out until receipt by the 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 Project Manager requires additional work to be performed, the contractor, if he considers it necessary, will give notice within seven (7) days to

the Project Manager of the length of time he (the contractor) requires over and above that allotted for completion of the contract.

If the 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 Contractor may be nominated by the Project Manager to supply and/or install any equipment covered by the Prime Cost or Provisional Sums contained within the Contract documents.

The work covered by Prime Cost and Provisional Sums may or may not be carried out at the discretion of the Project Manager. The whole or any part of these sums utilised by the contractor shall be deducted from the value of the contract price when calculating the final account.

1.15 Bond

Bid security is NOT a requirement for this tender

1.16 Government Legislation and Regulations

The 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 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 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 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 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 Contractor

Contractor shall make the following facilities available for his use:

- a) Attendance 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, all plugging for fixing, fittings, machinery, fan ducting, etc., and all drilling and tapping of steel work. Any purpose made fixing brackets shall not constitute Builder's Work and shall be provided and installed by the contractor unless stated hereinafter otherwise.
- b) The provision of temporary water, lighting and power: All these services utilised shall be paid for by the Contractor
- c) Fixing of anchorage and pipe supports in the shuttering, anchorage with fully dimensioned drawings detailing the exact locations.
- d)
 - i) Provision of scaffolding, cranes, etc. but only in so far as it is required for the Contract Works
 - ii) Any specialist scaffolding, cranes, etc. to be used by any Contractor for his own exclusive use shall be paid for by the Contractor.

1.20 Suppliers

The 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 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

The Contractor is entirely responsible to KNBS for the whole of the works including any Contract Works and shall deal direct with KNBS or Engineer.

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 contractor but the value thereof shall be deducted from the Contract Sum and the value of the work ordered by the Engineer and executed thereunder shall be measured and valued by the Engineer in accordance with the conditions of the contract.

All work liable to adjustment under this 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 Contractor shall give notice to the Quantity Surveyor or Engineer to carry out measurements before covering up. If the contractor shall make default in these respects he shall, if the Project Manager so directs, uncover the work to enable the necessary measurements to be taken and afterwards reinstate at his own expense.

1.24 Contractor's Office in Kenya

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

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

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

The 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 contractor's Head Office is remote from his office in Nairobi or the site of the contract Works or otherwise.

1.25 Builder's Work

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

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

The contractor shall also provide and install any purpose made fixing brackets.

1.26 Structural Provision for the Works

Preliminary major structural provision has been made for the 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 contractor stated otherwise when submitting his tender.

Any major structural provision or alteration to major structural provisions required by the 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 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 sitting 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 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 contractor's responsibility.

The contractor shall be deemed to have allowed in his 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 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 Contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the 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 contractor shall carry out such tests of the 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 (Contractor's own preliminary and proving tests excepted).

It will be deemed that the contractor has included in the contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required as part of the 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 contractor shall commission the contract Works and provide attendance during the commissioning of all services, plant and apparatus connected under the contract Agreement or other 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 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 contract Works.

1.30 Identification of Plant Components

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

If the contractor requires any further instructions, details, Contract Drawings or information drawings to enable him to prepare his Working Drawings or proposals, the 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 contractor to ensure that the installations shown on the Working Drawings have been cleared with the Project Manager and any other Contractors whose installations and works might be affected.

If the contractor submits his Working Drawings to the Engineer without first liaising and obtaining clearance for his installations from the Project Manager and other Contractors whose installations and works might be affected, then he shall be liable to pay for any alterations or modification to his own, the Contractor's or other 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 contractor shall include but not be restricted to the following:

- a) Any drawings required by the 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 Contractor indicating approval or amendment therein.

Six copies of the approved Working Drawings shall be given to KNBS by the contractor for information and distribution to other Contractors carrying out work associated with or in close proximity to or which might be affected by the 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 contractor of any of his obligations under the contract nor relieve him from correcting any errors found subsequently in the Approved Working Drawings or other Working Drawings and in the contract Works on site or elsewhere associated therewith.

The 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 contractor of his obligation to complete the contract Works within the agreed Contract Period and in a manner that would receive the approval of the Project Manager.

1.33 Record Drawings (As Installed) and Instructions

During the execution of the contract Works the 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 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 contractor as a correct record of the installation of the 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" 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 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 contract Works and shall contain no spurious or irrelevant information.

Marked-up drawings of the installation of the contract Works shall be kept to date and completed by the date of practical or section completion. Two copies of the Record Drawings of 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 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 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 contractor's obligations referred to above, if the contractor fails to produce to the Engineer's approval, either:-

- a) The Marked-up Drawings during the execution of the 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 contractor.

1.34 Maintenance Manual

Upon Practical Completion of the contract Works, the contractor shall furnish the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the 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 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 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 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 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 contract Works shall be considered complete and the Maintenance and Defects Liability Period shall commence only when the contract Works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer and officially approved and accepted by KNBS, provided always that the handing over of the contract Works shall be coincident with the handing over of the sub- Contract Works.

The procedure to be followed will be as follows:

- a) On the completion of the contract Works to the satisfaction of the Engineer and KNBS, the 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 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 KNBS.
- d) In the presence of KNBS 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 contractor allowed for all protective and finish painting in the contract Sum for the 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 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 contractor shall give two weeks' 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 contractor's own risk and should the test certificate not be approved new tests may be ordered by the Engineer at the 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 contract Works installation as described hereinafter to the satisfaction of the Engineer.

1.40 Labour Camps

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

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

If practicable, W.C. accommodation shall be allocated for the sole use of the contractor's workmen and the 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 and provision of any lock-up sheds or stores required will be provided by the contractor

Nominated 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 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 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 contractor shall allow in the 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 contractor shall, if required, enter into a maintenance and service agreement with KNBS 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 1.41 (Initial Maintenance).

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

The 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 KNBS 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 Contractor who shall be liable for the cost of any water or electric current used and for any installation provided for their own use.

1.46 Protection

The 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 Contract as certified by the Engineer.

1.48 Damages for Delay

Liquidated and Ascertained damages as stated in the Contract Agreement will be claimed against the Contract for any unauthorized delay in completion. The 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 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 contractor shall agree with the Engineer the value of any variations outstanding and as soon as possible thereafter submit to the Engineer his final statement of account showing the total sum claimed sub-divided as follows:

- | | |
|---------------|---|
| Statement A - | detailing the tender amounts less the Prime Cost and Provisional Sums, included therein. |
| Statement B - | detailing all the variation orders issued on the contract. |
| Statement C - | Summarizing statement A and B giving the net grand total due to the Contractor for the execution of the Contract. |

1.51 Fair Wages

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

- a) The 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 Nairobi County.
- b) In the absence of any rates of wages, hours or conditions of labour so established the 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 contractor shall provide and keep constantly available for consultation on site an experienced English - speaking Supervisor and shall provide reasonable office facilities, attendance, etc., for the Supervisor.

In addition, during the whole of the time the works are under construction, the 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 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 contractor.

1.53 Test Certificates

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

1.55 Discount to KNBS

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

1.56 Guarantee

The whole of the work will be guaranteed for a period of 12 months from the date of the Engineer's certification of completion and under such guarantee the 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 temporal 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 contractor.

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 proportion of the Contract works remaining as at that time of extension. 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 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 an 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 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 1.69)

1.69 Contractors Obligation and Employers Obligation

The Contractor will finance all activities as part of his obligation to this contract. KNBS 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 Contractor, or for loss of profit (expectation loss) in case of premature termination, reduction or increase of works as the 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.

SECTION VII- APPENDIX TO CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

ADD TO CLAUSE 1.40

There is no labour camp.

MODIFY CLAUSE 1.66

Percentage of extended preliminaries shall be inserted in Bill No.1. However, this amount of the extended preliminaries **SHALL NOT** exceed the Liquidated and Ascertained Damages

ADD TO CLAUSE 1.17

Prices quoted shall include **VAT and withholding tax.**

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

SECTION VIII- GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

1.1 General

1.2 Standard of Materials

1.3 Workmanship

1.4 Procurement of Materials

1.5 Record Drawings

1.6 Regulations and Standards

1.7 Setting out Works

1.8 Testing on Site

1.1 GENERAL

This specification is to be read in conjunction with any other information herein issued with it. Bills of quantities and schedule of unit rates shall be the basis of all additions and omissions during the progress of the works.

1.2 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 contractor shall adhere.

Should the contractor install any material not specified herein before receiving approval from the proper authorities, the Engineer shall direct the 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 Contractor. All materials required for the works shall be from branded manufacturers, and shall be new and the best of the respective kind and shall be of a uniform pattern.

1.3 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 contractor's expense.

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

1.4 PROCUREMENT OF MATERIALS

The 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.

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

1.5 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.

1.6 REGULATIONS AND STANDARDS

All work executed by the contractor shall comply with the current edition of the “Regulations” for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers, Electric Power Act, Kenya Bureau of Standards (KBS), Institution of Electrical Engineers (I.E.E) Wiring Regulations, Current recommendation of CCITT and CCIR, and with the Regulations of the Local Electricity Authority and the Communications Commission of Kenya (CCK)

Where the sets of regulations appear to conflict, they shall be clarified with the Engineer.

1.7 SETTING OUT WORK

The 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.

1.8 TESTING ON SITE

The 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 Specifications No. 1 and No.2, Electric Supply Company’s By-Laws, Communications Commission of Kenya (CCK) requirements or any other supplementary Regulations as may be produced by the engineer.

Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation shall be rectified by the contractor at his own expense.

SECTION IX: - TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED

ITEM	DESCRIPTION	MANUFACTURER	COUNTRY OF ORIGIN	REMARKS (Catalogue No.etc.)
A	Water closet			
B	240,000btu/Hr Air con			
C	Wash Hand Basin			
D	80liter capacity fire suppression cylinder			
E	Worktop sink			
F	51mm diameter vulcathene pipe			
G	102mm diameter Ditto			
H	Steel tower			
I	GMS Pipes			
J	Gate valves			
K	Non-return valves			
L	GI Bends			
M	GI Tee			

SECTION X- SCHEDULE OF CONTRACT DRAWINGS AND BILL OF QUANTITIES

- 1.0 There are no contract drawings.
- 2.0 Bidders shall be required to visit the site to ascertain cable routes and lengths before pricing the Bills of Quantities in this document. In this regard, the bidders shall be required to get in touch with the Project Engineer, County Electrical and Mechanical Engineer (B. S), Industrial area, along Machakos Road, Nairobi, during official working hours.
- 3.0 It shall be the responsibility of the contractor to provide wiring and connection diagrams for approval by the Project Manager.

**A. BILLS OF QUANTITIES
DATA CENTER WORKS
(AIR CONDITIONING,
RAISED FLOOR AND FIRE
SUPPRESSION)**

GENERAL SPECIFICATIONS FOR FIRE SUPPRESSION SYSTEM

1.1 General

The specifications described here make reference to Argon 200 fire suppression system. However, alternative systems utilizing inert gases may be used subject to the condition that they meet all the requirements of this specification.

The Argon 200 shall be used to extinguish fires in the rooms to be specified. The gas shall be stored under pressure in liquefied form inside cylinders and piped to fire protected areas. Each Argon system in a given zone shall be supplied complete with its control Unit that shall receive the signal from smoke detectors or break glass and automatically release the gas after sounding an alarm bell and switching off any existing Ventilation systems. The fire detection system in all areas where Argon gas system is not installed shall be supplied and installed by but the Sub-Contractor shall liaise with him and extend detection signal outputs into the Master Alarm Control Panel.

The Design and installation shall be made in accordance with these specifications, drawings and the following standards:

- a) **NFPA 2001-Clean Agent Fire Extinguishing systems**
- b) **NFPA 70-National Electrical Code**
- c) **NFPA 72-National Fire Alarm Code**
- d) **Local authority requirements**

- 1.1.1 The fire suppression systems shall be designed by competent personnel who are trained and authorized by the equipment manufacturer for design of total flooding Argon 200 systems and the integrated detection systems. Working Drawings shall be provided in sufficient detail to indicate the type, size, and arrangement of component materials and devices; and the dimensions needed for installations and correlation with other materials and equipment. All Working Drawings shall be submitted for review and approval prior to installation.
- 1.1.3 Detailed literature outlining the operation, recharge and service of the system, Maintenance procedures for the owner shall be provided.
- 1.1.4 Equipment manufacturer shall provide a **12 month** warranty Details of this warranty shall be furnished upon request.
- 1.1.5 All devices, components and equipment shall be products of the same manufacturer and shall be U.L listed or FM approved.

1.2 SYSTEM ARRANGEMENT

- 1.2.1 Argon 200 fire suppression system shall be of the engineered, permanently piped, fixed nozzle type with all pertinent components of the same manufacturer. All agent storage containers shall be centrally located as vertical, free-standing cylinders with wall mounted retaining brackets. Where multiple cylinders are required for the same hazard, a common manifold should be employed.

Manifolds shall be constructed from seamless schedule 80 piping. They shall be complete with a safety relief valve. Manifolder cylinders shall employ a flexible discharge hose to facilitate installation and system maintenance. Each cylinder on a manifold shall also include an agent check valve installed to the manifold inlet. Where a set of manifolded cylinders shall be required to serve multiple zones, selector valves shall be used to direct the extinguishing agent to the respective zone.

1.2.2 Detection system shall be of the engineered type, suitable for direct interface with the Argon fire suppression system. Detectors shall be wired in Sequential Detection method of operation or standard Cross-Zoned detection. For each hazard, both Ionization and Photoelectric type smoke detectors shall be used to provide automatic input to the control panel. In addition, manual pull station(s) shall be provided for the direct electric release of the Argon Fire Suppression System.

1.2.3 Automatic operation of each protected area shall be as follows:

- a) Actuation of one (1) detector, within the system to:
 - i) Illuminate the “ALARM” LED on the control panel face.
 - ii) Energize the audible notification appliances within the protected space with a unique pattern to indicate a first alarm condition
 - iii) Transfer sets of 5 Amp rated auxiliary contacts which can perform auxiliary system functions such as: Operate door holder/closures on access doors, Transmit a signal to the fire alarm system, Shutdown HVAC equipment, etc
- b) Actuation of a 2nd detector, within the system, to:
 - i) Illuminate the “PRE-DISCHARGE” LED on the control panel face; energize the audible notification appliances within the protected space with a unique pattern to indicate a second alarm (predischage) condition, Shut down the HVAC system and/or close dampers, Start time-delay sequence (not to exceed 60 seconds), enable System abort sequence, Light an individual LED on a graphic annunciator.
 - ii) After completion of the time-delay sequence, the system shall activate and the following:-
 - shall occur: Illuminate a “RELEASE” LED on the control panel face, Energize the audible notification appliances within the protected space with a continuous on pattern to indicate a release condition, Shutdown of all power to high-voltage equipment, Energize a visual indicator(s) outside the hazard in which the discharge occurred, Energize a “System Fired” audible device.

The system shall be capable of being actuated by manual discharge devices located at each hazard exit. Operation of a manual device shall duplicate the sequence description above except that the time delay and abort functions SHALL be bypassed. The manual discharge station shall be of the electrical actuation type and shall be supervised at the main control panel.

1.3 DESIGN PARAMETERS – ARGON

1.3.1 Design of the total flooding Argon system shall be based upon the enclosure being sufficiently tight against agent leakage with all ventilation shut down and / or fire dampered or provide for static air condition upon discharge. Agent quantity calculations shall be determined from dimensions furnished on the construction drawings and/or in the particular specification using a design concentration based on fire hazard class of the protected zone and the NFPA 2001 standards. As a minimum a concentration of 38 % at the minimum anticipated hazard temperature of 20 ° C shall be used.

Calculation for the maximum design concentration shall be based upon maximum anticipated hazard temperature of 32 ° C.

When applicable, agent quantity shall be adjusted for:

- i) Altitudes of more than (915m) above sea level.
- ii) Non-flooded false ceiling volume.
- iii) Multiple hazards from a common agent supply.
- iv) Manufacturer standard tanks and fill increments
- v) Duct volume for HVAC system.

1.3.2 The system shall be designed to discharge the calculated agent quantity in a nominal 60 second period.

1.3.3 Nozzle spacing shall be in accordance with the listed approved coverage for each nozzle type. In all cases, the need for additional nozzle shall be considered based upon site conditions and manufacturer's recommendations.

1.3.4 Hydraulic calculations for each system shall be used upon two-phase flow equations for unbalanced systems as defined by **NFPA** regardless if a single nozzle or balanced piping network is used.

1.3.5 Computerized verification of hydraulic calculations shall be submitted for each Argon system.

1.3.6 The contractor shall provide data to indicate the free venting area required per **NFPA standards** for each hazard volume.

1.3.7 DESIGN PARAMETERS – DETECTION

1.3.7.1 The design of the detection/control system shall be based on a clean, vibration free, electrical non-hazardous environment

1.3.7.2 As a minimum detector spacing shall be based upon **NFPA** recommended practices for ceiling construction, air flow and manufacturer recommendations. At least one smoke detector of each type (ionization and photoelectric) shall be used in each protected area.

Where multiple detectors are used, detection shall alternate such that ionization are adjacent to photoelectric.

1.3.7.3 Unless otherwise stated on the drawings manual pull station(s) shall be located at all points of exit from the protected area.

Unless otherwise stated on the drawings at least one alarm device shall be located within the protected area for the general alarm function.

Battery capacity shall be sufficient to permit normal non-alarm condition for 24 hours with subsequent general alarm for 5 minutes after loss of primary line

power. The contractor shall be required to furnish calculations to back up the battery capacity to be installed.

1.4 EQUIPMENT AND MATERIAL

1.4.1 General

All materials and equipment shall be of new, unused, and undamaged condition in strict accordance with the requirement of this section. Equipment shall be required to meet the specified standards; **ISO 14520, NFPA.**

All equipments and materials shall only be used for their intended application, in locations for which they were designed, and installed in accordance with the manufacturer's instructions and /or recognized standard trade practice.

1.4.2 Pipe Material – Argon 200 bar System.

Argon 200 system piping shall be of non-combustible materials having physical and chemical characteristics such that its integrity under stress can be predicted with reliability. Materials other than listed below, such as stainless steel or nonferrous piping or tubing, may be used if the materials satisfy the applicable requirements of NFPA.

As a minimum, piping materials and manifolds shall be schedule 40 seamless steel pipe conforming To BS specifications and capable of 65 bar operating pressure (ASTM Grade A-106B). Under no conditions shall ordinary cast iron pipe, steel pipe or non-metallic pipe be used.

Argon system piping joints shall be suitable for the design conditions and shall be selected with consideration of joint tightness and mechanical strength.

As a minimum, fittings shall be black class 300 malleable iron fittings. Ordinary cast iron fittings shall not be permitted.

Piping shall be installed accordance with good commercial practice to the appropriate codes, securely supported with Listed hangers, and arranged with close attention to the design layout since deviations may alter the design flow performance as hydraulically calculated. All Piping must be reamed, blown clear, and swabbed with appropriate solvent to remove mill varnish and cutting oils before assembly. The piping shall also be finished off with two coats of red paint after testing. Multi-outlet fittings other than tees shall not be permitted. Assembly of all joints shall conform to the appropriate standards. Threaded pipe joints shall utilize Teflon tape applied to male threads only.

1.4.2 Agent Storage Tank

Argon agent storage containers shall be of welded steel construction in accordance with **NFPA** Specification and finished in (baked red enamel) (red epoxy) paint.

Tank assemblies shall be filled with Argon pressurized to 200 bar at (21 °C).

Initial filling of the cylinders and recharge shall be done in accordance with the manufacturer's established procedures and shall not require replacements components for normal service.

The size and fill weights of all cylinders shall be of the following nominal sizes:—

- i) 80 kg
- ii) 140kg

Nominal 270kg tank assembly shall be equipped with an internal liquid level measuring rod, marked in ¼ inch increments to allow direct reading of the liquid level and conversation to the weight of Argon within the tank.

Tank assemblies shall be vertical, free standing modules employing suitable wall mounted retaining brackets. Tank assemblies shall be listed or approved to perform in the temperature range -20C to 50C.

Aluminum **name plates** indicating manufacturer's name and part number, agent fill weight, total charged weight date of fill, shall be permanently bonded to each tank.

Each tank assembly shall have the means to accommodate lifting devices to facilitate weighing removal and replacing.

Tank assembly shall include a pressure gauge and a low pressure switch that operates at approximately 180 bar to facilitate continuous supervision of tank pressure.

1.4.2.1 Tank Valve

Agent storage tank assemblies shall include an integral, high flow valve assembly connected to the tank by a machined thread and sealed by an O-ring. Valve outlet sizes shall be based on the nominal tank capacity with a one inch size for 18,33,54 and 72 pound assemblies, and three inch for 600 pound assemblies.

The valve design shall be of the differential pressure type which utilizes tank pressure to seal the valve assembly. The valve shall be compatible with separate, removable, stackable type actuators for electric, pneumatic, and/or manual actuation.

Operation of the valve by the stackable type actuator shall be such actuation. Operation of the valve by the stackable type actuator shall be such that pressure is relieved from the upper chamber of the valve causing the valve to open. Valves shall be forged brass construction with an o-ring sealed brass spool incorporating the main electrometric seal surface.

The valve assembly shall include recessed pressure gauge 0 to 250 bar, overpressure safety relief disc assembly, normally pressurized connection port for an optional low pressure switch, normally unpressurized connection port used as pneumatic source for a slave cylinder valve actuation, and brass shipping caps on exposed thread connection.

When pneumatically operated main/reserve systems are used, pilot valves shall be equipped with actuation isolators.

All tank valves shall be F.M or LPCB Approved.

1.4.2.2 Tanks Brackets

Each Argon tank shall be furnished with a stainless steel, two part, strap type retaining bracket designed to secure the cylinders to the wall or any other suitable surface as may be recommended by the system manufacturer.

1.4.2.3 Valve Actuator system

Argon valve actuator system shall consist of a pneumatically operated cylinder actuator assembly and a **solenoid type** Electric actuator package.

The solenoid actuator package shall consist of the solenoid valve mounted either on a rechargeable slave nitrogen cylinder or on the Argon gas cylinder. A signal from the control panel shall operate the solenoid valve to discharge the gas in the pilot cylinder. The discharged gas shall then open the cylinder actuator assembly mounted on the Argon cylinder discharge valve. This process shall release the stored Argon gas for fire extinguishing. Where multiple zones are protected from the same storage system, selector valves shall be used. These valves shall be actuated by the nitrogen gas from the actuation package. Manual override actuators shall be designed to attach to electric actuator or directly to the valve assembly and permit manual operation of the pilot cylinder tank assembly. Manual actuator positions shall be clearly marked and operating instructions provided. All actuators shall be LPCB Approved.

1.4.3 Discharge Nozzles

Argon discharge nozzles shall be of one piece (brass) construction sized to provide flow rates in accordance with system design hydraulics.

Orifice (s) shall be machined in the nozzle body to provide a horizontal discharge in

90 °, 180 °, or 360 ° patterns based upon the approved coverage arrangements.

Separate, interchangeable orifice plates are not acceptable.

Nozzles shall be permanently marked with the manufacturer's part number, number of orifice and orifice code. The nozzle shall be threaded directly to the discharge piping without the use of special adaptors.

Nozzles shall be LPCB Approved.

1.5 Warning Signs

Etched aluminum Warning Signs shall be provided at all Entrance and Exits of the protected area.

Entrance sign shall read: "WARNING \DO NOT ENTER ROOM WHEN ALARM SOUNDS, **ARGON** BEING RELEASED."

Exit sign shall read: " WHEN ALARM SOUNDS, VACATE AT ONCE, **ARGON** BEING RELEASED.."

1.6 EQUIPEMENT AND MATERIAL –ELECTRICAL

1.6.1 General Materials

All electrical trunkings and conduits shall be employed in accordance with applicable codes and intended use and contain only those electrical circuits associated with the fire detection and control system and shall not contain any circuit that is unrelated to the system.

Unless specifically provided otherwise in each case, all conductors shall be enclosed in steel conduit, rigid or thin walled as conditions dictate, except in computer room where they shall be PVC conduit concealed in building fabrics. All wiring shall be of the proper size to conduct the circuit current The use of aluminium wire is strictly prohibited. Splicing of circuits shall be kept to a minimum and are only to be found in an electrical device suited for the

purpose. Wire spliced together shall have the same colour insulation. Wire splices shall be made with appropriate devices suited for the purposes.

All wire terminations shall be made with crimp terminals unless the device at the termination is designed for bare wire termination.

All electrical circuits shall be numerically tagged with suitable devices at its terminating point and/ or splice. All circuits numbers shall correspond with the installation drawings.

The use of coloured wires is encouraged. White coloured wire shall be used exclusively for the identification of the neutral conductor of an alternating current circuit.

Green coloured wire shall be used exclusively for the identification of the earth ground conductor of an AC and DC circuit.

1.6.2 Control Panels – General

All control panels shall be F.M Approved and be utilized with listed or approved operating devices and shall be capable of the following features,;

- a. Supervised Detection Circuits (s) with a first stage and a second stage circuit.
- b. Supervised Alarm Circuit allowing for a first stage alarm, second stage alarm and the third stage for gas release.
- c. Supervised Release Circuit
- d. Supervised Manual Electric Pull Circuit
- e. Supervised Manual mechanical Pull Circuit
- f. 0-60 second Programmable Time Delay
- g. Battery Standby
- h. Front Panel Indicating Lamps and 4x20 character display
- i. Key Lock Steel Enclosure with a glass panel covering the controls

The internal power supply shall operate from 240V 50Hz A.C power supply. A fused polarity reversing, 1 amp, 24VDC supervised dedicated release circuit for use with approved fire suppression system releasing devices shall be provided. The control unit shall provide provisions for housing its own set of “on-line” float charged emergency batteries within the enclosure.; Battery supervision shall be provided for condition and placement of the batteries.

A supervised dedicated manual pull circuit designated for immediate operation of the release circuit shall be provided.

An auxiliary trouble circuit for supervision of other normally closed accessory devices shall be provided.

The control unit shall be housed in steel cabinet of approved type with conduit knockouts in a (red) (beige) enamel finish.

The control unit shall be F.M or LPCB Approved as an alarm/releasing control unit

1.6.3 Smoke Detector ~ Ionization

Ionization type smoke detector shall be dual chamber type and compatible with the control unit. The detector shall have an LED in its base which is illuminated

in a steady "on" mode when in alarm. Reset of the detector shall be performed by the control unit reset switch.

The design of the ionization detector compensating circuits shall provide stable operation with regard to minor changes in temperature, humidity, and atmosphere conditions.

The sensitivity voltage shall be factory set per U.L 268. A special locking screw shall be provided to lock the head to the base, The head to base connection shall be by use of bifurcated contacts. Terminal connections to the base shall be of the screw type.

The detector shall be F.M or LPCB Approved.

1.6.4 Smoke Detector - Photoelectric

Photoelectric detector shall be a solid-state sensing chamber unit providing stable operations (sensitivity) and compatible with the control unit. The detector shall utilize a light sensing photodiode and a pulse signal processor to measure the density of the combustion products within the sensing chamber. The detector head shall have a stainless steel mesh to prevent foreign objects from entering the sensing chamber.

The sensitivity voltage shall be factory set.

A special locking screw shall be provided to lock the head to the base. The head to base connection shall be by use of bifurcated contacts. Terminal connections to the base shall be of the screw type.

The detector shall be F.M or LPCB Approved.

1.6.5 Alarm Bells

The vibrating Alarm Bell shall be approved for use with the listed control unit. The polarized alarm bell shall be rated at 24VDC and draw no more than .063 amps and shall contain a series diode for use in supervised systems. It shall also incorporate a flashing strobe light.

It shall have a dB level of 86 – 90 at 3 metres.

The bell shall be constructed of high quality materials to ensure reliability and long life and have a baked red enamel finish.

The device shall be F.M or LPCB Approved.

1.6.6 Manual Pull Stations (Fire man's switch)

The Manual Pull Station shall be provided for the release (electrical) of the Argon in case of an emergency. The unit shall be contained within a metal body having a (single) (double) pole switch. The device shall be F.M or LPCB Approved.

1.6.7 Abort Switch

The abort switch shall be used where an investigation delay is desired between detection and actuation of the Argon System.

The Abort Station shall be the "Dead Man" type and shall be located next to each manual switch. "Locking" or "Keyed" abort stations **shall not** be permitted. The Abort Station shall indicate a trouble condition at the Control Panel, if depressed, and no alarm condition exists. The Abort Station shall be located adjacent to each manual station and can be furnished in combination with a Manual Release Switch.

The device shall be U.L listed or F.M Approved for a delay switch.

1.6.8 Pressure Switch

This pneumatically actuated switch shall be used to give positive identification of release of Argon in the piping system.

The switch shall have one set of normally open and one set of normally closed contacts.

1.7 SYSTEM INSPECTION AND TESTING

The completed installation shall be inspected by authorized personnel and shall include a full operational test of all components per the equipment's manufacturer recommendation including agent discharge. This shall be done in the presence of the owner's representative and other insuring authority having jurisdiction.

All mechanical and electrical components shall be tested according to the manufacturer's recommended procedure to verify system integrity.

The inspection and testing shall be carried out by the contractor. The tests shall demonstrate that the entire control system functions as designed and intended. All circuits shall be tested: automatic actuation, solenoid and manual actuation, HVAC and power shutdowns, audible and visual alarm devices and manual override of abort functions. Supervision of all panel circuits, including AC power and battery power supplies, shall be tested and qualified. Inspection shall include a complete checkout of and certification of weight and cylinder pressure. A written report shall be filed with the Engineer.

Two copies of drawings shall be provided by Contractor indicating the installed details. All routing or piping and electrical conduit and accessories shall be noted.

Equipment, Installation and Maintenance Manuals shall be provided in FOUR copies, in addition to the as-built drawings.

Prior to final acceptance, the contractor shall provide operational training in all concepts of this system to the owner's key personnel. Training shall consist of :-

- i) System Control Unit Operation
- ii) Troubleshooting Procedures
- iii) Abort Procedures
- iv) Emergency Procedures
- v) Safety Requirements
- vi) A functional test shall be completed prior to the concentration test consisting of detection, release alarm, accessories related to system, control unit, and a review of the tanks, piping, fittings, hangers and cylinder pressure.

1.8 WARRANTY

All system components shall be guaranteed against defects in design, materials and workmanship for the full warranty period which shall in no case be less than one (1) year from the date of system acceptance.

BILLS OF QUANTITIES

a) PRICING OF PRELIMINARIES ITEMS

Prices will be inserted against item of preliminaries in the sub-contractor's Bills of Quantities and specification. These Bills are designated as **Schedule I** 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 1

Contractor's preliminaries are as per those described in section C. 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 have 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

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.

The unit of measurements and observations are as per those described in clause 3.05 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

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 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)**.

In accordance with Government policy, the 16% VAT and 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)**, unless there exists policy change on VAT.
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 description of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the contractor shall adhere. Otherwise alternative brands of **equal** and **approved** quality will be accepted.

Should the contractor install any material not specified here in before receiving **written approval** from the Project Manager, the 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 for the tender to be deemed valid**.
6. Tenderers **MUST** enclose, together with their submitted tenders, **detailed Manufacturer's Brochures** detailing Technical Literature and specifications on all the equipment they intend to offer.

SCHEDULE 1 – CONTRACT PRELIMINARIES

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
					KSHS	CTS
1	Discrepancies					
2	Conditions of sub-contract Agreement					
3	Payments					
4	Site location					
5	Scope of Contract Works					
6	Extent of the Contractor's Duties					
7	Firm price contract					
8	Variation					
9	Prime cost and provisional sum (insert profit and attendance which is a percentage of expended PC or provisional sum.)					
10	Bond					
11	Government Legislation and Regulations					
12	Import Duty and Value Added Tax clause 1.17 (Note this clause applies for materials supplied only. VAT will also be paid by the contractor as allowed in the summary page)					
13	Insurance company Fees					
14	Provision of services by the Main contractor					
15	Samples and Materials Generally					
	Sub-total carried forward					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
					KSHS	CTS
16	Supplies					
17	Bills of Quantities					
18	Contractor's Office in Kenya					
19	Builder's Work					
20	Setting to work and Regulating system					
21	Identification of plant components					
22	Working Drawings					
23	Record Drawings (As Installed) and Instructions					
24	Maintenance Manual					
25	Hand over					
26	Painting					
27	Testing and Inspection – manufactured plant					
28	Testing and Inspection – Installation					
29	Storage of Materials					
30	Initial Maintenance					
	Sub-total for this page					
	Sub-total brought forward from previous page					
	Total for preliminaries carried forward to Main price summary page					

BILL NO. I: ~ PRECISION AIR CONDITIONING FOR DATA CENTER

Item	Description	Qty	Unit	Rate	Amount	
					Kshs	Cts
A	<p>Supply, deliver, install, test and commission an air conditioning system of close control, down flow type, designed and suitable for server room air conditioning on raised floor base. Rates quoted shall include for supports, jointings and any other items necessary for satisfactory operation of the system.</p> <p><u>CLOSE CONTROL (PRECISION) INDOOR AIR CONDITIONING UNITS.</u></p> <p>Close control, down flow air conditioning unit of approximate cooling capacity 35kW (120,000 Btu/hr). It shall be complete with humidity control. Its cabinet to be constructed from galvanised steel coated with epoxybalud powder paint for durable finish. Unit cabinet to be lined internally with fire resistant foam with full height hinged doors. Unit to have features such as:</p> <ul style="list-style-type: none"> -Air flow switch -Electronic expansion valve -9mm pleated disposal accessible filters in rigid frames. -Control panel with fan motor contactors and overload -Microprocessor controller with analogue/digital control with real time clock and communication port plus networking BMS connections. -Electric humidifier - Condensate pump -Water detector -Microprocessor control shall be Airetronic microprocessor controller with LCD display keyboard with temperature and humidity control as well as monitoring, alarm handling and alarm log and shall be compatible with BMS system protocols such as MOD bus, Trend IQ LONworks, BACmet and various control systems such as Trend, Johnson, Metasys e.t.cUnit as “AIREDALE Easicool, Model 26X-EZ” or approved equivalent. 	4	No.			
	<p style="text-align: center;">Sub-total carried forward to collection</p>					

Item	Description	Qty	Unit	Rate	Amount	
					Kshs	Cts
A	OUTDOOR UNIT Remote air cooled double circuit condensing unit with combination to match the above indoor units including non-return valve at outlet and inlet to each compressor. Units to have hermetic scroll compressors with initial gas charge (R410A or R407C). Condensing unit constructed from galvanized steel sheet. The epoxy cabinet to be powder painted for durable and weather proof finish. The features for each unit shall be: - Hermetic scroll compressors with internal motor protection vibration isolators - Liquid and suction shut-off valves and non-return valves. - High and low pressure switches - Sight glass and filter drier - Phase rotation protection - Hot gas bypass. - Mounting brackets Unit as “ AIREDALE ” or equal and approved					
B	<u>REFRIGERANT AND PIPEWORK</u>	8	No.			
C	Refrigerant charge, R410A or R407C as recommended by the manufacturer for all refrigerant circuits.	Item	Sum			
D	16mm diameter liquid line copper pipe	40	LM			
E	38mm diameter suction line copper pipe.	40	LM			
F	<u>INSULATION</u> Allow for insulation of the refrigerant pipework with rubber armaflex insulation, 25mm thick	Item	Sum			
G	Allow for painting of all insulation with three coats of chlorinated rubber paint.	Item	Sum			
H	<u>OTHER ASSOCIATED WORKS</u> Close control indoor unit floor stand complete with air discharge vanes and ducts	2	No.			
I	20mm diameter black PVC condensate pipe	20	LM			
	Associated electrical works /wiring	Item	Sum			
Sub-total carried forward to collection						

PROPOSED CLOSE CONTROL AIR CONDITIONING SYSTEM FOR SERVER ROOM

Item	Description	Qty	Unit	Rate	Amount	
					Kshs	Cts
	<u>RAISED FLOOR WORKS.</u> Supply, deliver and install the following items for raising the floor. Prices to include fixing glue, panel lifting equipment and other accessories necessary for the successful installation of the items.					
A	<u>Non-perforated tiles</u> 600mm square aluminum die cast, non perforated raised floor panels designed for clean rooms. Panels to be of thickness 60mm, 10kN design point load, fire resistant, colour grey pearlite. Type as “PRODATA, manufactured by Lindner, Germany” or equal and approved.	155	No.			
B	<u>Perforated tiles</u> Ditto but perforated, each tile having 256 holes of diameter 14mm and designed to match the above non perforated tiles. Type as “ALUVENT” manufactured by Lindner, Germany” or equal and approved.	40	No.			
C	<u>Pedestals</u> Raised floor pedestals in treated galvanized steel, 450mm adjustable height, 10kN design mean load, size M24, fire resistant and inclusive of pedestal glue and locking glue. Type as “T3 pedestals”, manufactured by Lindner, Germany” or equal and approved.	195	No.			
D	<u>Epoxy flooring.</u> Apply 2 mm thick fire proof epoxy resin sub-floor paint of approved color in two coats below the access floor (on the base floor) of server room, to give a clean smooth finish. Paint to be as “Jotun Paints” or approved equivalent.	84	SM			
E	Testing and commissioning of the system to the satisfaction of the engineer.	Item	Sum			
Sub-total carried forward to collection						

COLLECTION PAGE FOR BILL NO. I

ITEM	DESCRIPTION	AMOUNT	
		KSHS.	CTS
A	Sub-total brought forward from page Pg 88		
B	Sub-total brought forward from page Pg 89		
C	Sub-total brought forward from pagePg 90		
Total for Bill No. I carried forward to main price summary			

BILL NO. II: ~ AUTOMATIC FIRE SUPPRESSION SYSTEM

Item	Description	Qty	Unit	Rate	Amount	
					Kshs	Cts
	Supply, deliver, install, test and commission the following. Rates should include all necessary associated accessories for the satisfactory functioning of the equipment/system:-					
A	<u>Suppression gas cylinders with gas</u> 80 litre container having 32.1 kg gas (a 50%-50% blend of gas by volume of Nitrogen and Argon) under normal charge at cylinder pressure of 300bar. The cylinder should be of dimensions 267mm diameter, 1910mm height when fitted with valve cylinders. The assembly should be complete with discharge valves, rated pressure gauges and hoses for connection to manifold. All to be as “Fike” or approved equivalent.	6	No.			
B	<u>Suppression system accessories</u> Supply and install the following accessories as part of the suppression gas system. Price to include any other necessary accessories required for satisfactory operation of the system.	1	No.			
C	25mm diameter cylinder manifold kit for 6 cylinders in seamless steel. To be complete with manifold relief valve.	Item	Sum			
D	Cylinder support brackets for 6No. cylinders	6	No.			
E	Actuator assembly of 22bar minimum operating pressure and 165bar maximum operating pressure.	1	No.			
F	410ml capacity rechargeable nitrogen cylinder solenoid actuation package. The nominal fill shall be 160bar at 15°C. It shall be complete with vent, connection hose and diode for connection to control panel on one hand and to pneumatic actuator on the other.	1 1 1 1	No. No. No. No.			
G	Discharge pressure switch assembly		No.			
H	Manual release valve assembly and abort station. Warning notices as described					
Sub-total carried forward to collection						

Item	Description	Qty	Unit	Rate	Amount	
					Kshs	Cts
	<u>Gas pipe-work and fittings-</u> Prices to include all jointing, anchorage and other associated fittings.					
A	32mm diameter NB galvanized pipe, class “C”	32	Lm			
B	25mm ditto.	26	Lm			
C	20mm ditto	32	Lm			
D	25mm equal tees	32	No.			
E	25 X 20mm tees	24	No.			
F	25 X 20mm reducer	24	No.			
G	20mm bends connecting to nozzles	24	No.			
H	20mm argonite discharge nozzle of V type, 4 orifice, nozzle coverage 360 degrees pattern and a radius 7metres. The nozzles to be designed to discharge minimum 40kg of gas in 60 seconds and shall be located 300mm below the ceiling. To be as “Fike” or equal and approved.	6	No.			
	<u>Fire detection and control</u>					
I	Ionization type smoke sensors	2	No.			
J	Photo-electric type smoke sensors	2	No.			
K	Light emitting vibrating alarm bells	2	No.			
L	Very early smoke detection apparatus (VESDA)	1	No.			
M	4 core fire resistant cables and accessories including conduiting in light gauge GI pipe,	48	Lm			
N	Single zone fire extinguishant control panel complete with charger and standby batteries. This shall be installed in a separate room adjacent to the server room.	1	No.			
O	Signage for manual discharge station	1	No.			
P	Allow for painting of entire pipe-work in red fire proof paint.	Item	Sum			
Q	9.0 litre Water/CO ₂ portable fire extinguisher	2	No.			
R	4.5kg CO ₂ gas portable fire extinguisher	2	No.			
S	9” (225mm) manual wall mounted alarm bell (gong)	2	No.			
T	Standard fire instruction notices	2	No.			
U	Standard fire exit signs	2	No.			
V	Testing and commissioning of installed system	Item	Sum			
Sub-total carried forward to collection						

COLLECTION PAGE FOR BILL NO II

ITEM	DESCRIPTION	AMOUNT	
		KSHS.	CTS
A	Sub-total brought forward from page..... Pg 92		
B	Sub-total brought forward from pagePg 93		
Total for Bill No. II carried forward to main price summary			

PROPOSED CLOSE CONTROL AIR CONDITIONING SYSTEM FOR SERVER ROOM

Item	Description	Qty	Unit	Rate	Amount	
					Kshs	Cts
	<u>PROVISIONAL SUMS</u>					
A	Allow for provisional sum for builder's works				500,000	00
B	Allow for provisional sum for project administration.				400,000	00
C	Contingency sum to be used at the discretion of the Engineer.				500,000	00
Total for provisional sums c/f to main price summary					1,400,000	00

SUMMARY PAGE FOR DATA CENTER WORKS

ITEM	DESCRIPTION	AMOUNT	
		KSHS.	CTS
A	Total preliminaries brought forward from pagePg 89		
B	Total for Bill No I brought forward from page Pg 92		
C	Total for Bill No. II brought forward from page Pg 95		
D	Total Provisional Sums brought forward from page Pg 97	1,400,000	00
TOTAL CARRIED TO MAIN SUMMARY PAGE			

B. PLUMBING AND DRAINAGE WORKS

PART2: GENERAL SPECIFICATIONS FOR PLUMBING AND DRAINAGE

2.01 Introduction

This section covers the general requirements for plant, equipment and materials forming for the plumbing and drainage installations.

2.20 MATERIALS AND STANDARDS

2.2.1 Pipework and Fittings

Pipework materials are to be used shall be as follows:-

a) Galvanized Steel Pipework

Galvanized steel pipe work up to 65mm nominal bore shall be manufactured in accordance with KS06.366:1982 or B.S. 1387 Medium Grade, with tapered pipe threads in accordance with B.S. 21. All fittings shall be malleable iron and manufactured in accordance with KS06-885:1995 or B.S. 143.

Pipe joints shall be screwed and socketed and sufficient coupling unions shall be allowed so that fittings can be disconnected without cutting the pipe. Running nipples and long screws shall not be permitted unless exceptionally approved by the Engineer.

Galvanized steel pipe work, 80mm nominal bore up to 150mm nominal bore shall be manufactured to comply in all respects with the specification for 65mm pipe, except that screwed and bolted flanges shall replace unions and couplings for the jointing of pipes to valves and other items of plant. All flanges shall comply with the requirements of B.S. 10 to the relevant classifications contained hereinafter under Section 'C' of the Specification.

Galvanizing shall be carried out in accordance with the requirements of B.S. 1387 and B.S. 143 respectively.

Polypropylene Pipes –Random (PP-R) Type 3

PP-R type3 pipe work shall be manufactured in accordance with B.S. 7291 part 2001. Dimensions and quality of PP-R Pipes shall be in accordance with DIN 8077 and pipelines in plastics materials joints, Components parts, Installation to be in accordance DIN 16928. Joints and fittings to be in accordance DIN 16962.

Copper Tubing

All copper tubing shall be as manufactured in accordance with B.S. 2871 from C.160 'Phosphorous De-oxidized Non-Arsenical Copper' in accordance with B.S. 1172.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings as manufactured in accordance with B.S. 864.

Short copper connection tubes between galvanized pipe work and sanitary fittings shall not be used because of the risk of galvanic action.

If, as may occur in certain circumstances, it is not possible to make the connection in any way than the use of copper tubing, then a brass straight connector shall be positioned between the galvanized pipe and the copper tube in order to prevent direct contact.

d) Poly-vinyl Chloride (P.V.C). Pressure Pipes and Fittings

All P.V.C. pressure pipes and fittings shall be as manufactured in accordance with KS06-478-2:1993 (B.S. 3505: 1968).

Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion.

Testing

Pipelines shall be tested in sections under an internal water pressure normally one and a half times the maximum allowable working pressure of the class of pipe used. Testing shall be carried out as soon as practical after laying and when the pipeline is adequately anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipe slowly to avoid risk of damage due to surge.

e) A.B.S. Waste System

Where indicated on the Designs and Schedules, the contractor shall supply and fix A.B.S. waste pipes and fittings.

The pipes, traps and fittings shall be in accordance with the relevant British Standards, including B.S. 3943 or KS06-7831-1:1990, and fixed generally in accordance with manufacturer's instructions and B.S. 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding, the manufacturer's instructions according to B.S. 5572: 1978.

Standard brackets, as supplied for use with this system, shall be used wherever possible.

Where the building structure renders this impracticable the contractor shall provide purpose made supports, centers of which shall not exceed one meter.

Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

f) Poly-vinyl Chloride (P.V.C) Pipes and fittings

The contractor shall supply and fix PVC soil pipes and fittings as indicated on the Designs and Schedules.

Pipes and fittings shall be in accordance with relevant British Standards, including B.S. 4514 and fixed to the manufacturer's instructions and B.S. 5572.

The soil system shall incorporate synthetic rubber gaskets as provided by the manufacturer whose fixing instructions shall be strictly adhere to.

Connections to WC pans shall be effected by the use of a WC connector, gasket and cover, fixed to suit pan outlet.

Suitable supporting brackets and pipe clips shall be provided at maximum of one metre centres.

The contractor shall be responsible for the joint into the Gully Trap on Drain as indicated on the Drawings.

2.2.2 Valves

a) Draw-off Taps and Stop Valves (Up to 50mm Nominal Bore)

Draw-off taps and valves up to 50mm nominal bore, unless otherwise stated or specified for attachment or connection to sanitary fitment shall be manufactured in accordance with the requirements of B.S.1010.

b) Gate Valves

All gate valves 80mm nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction, in accordance with the requirements of B.S. 3464. All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S.1218.

All gate valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all valves shall depend upon the pressure conditions pertaining to the site of works.

c) Globe Valves

All globe valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S.3061 or KS06-885:1995.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the site of works.

2.2.3 Waste Fitment Traps

a) Standard and Deep Seal P & S Traps

Where standard or deep seal traps are specified they shall be manufactured in suitable non-ferrous materials in accordance with the full requirements of B.S. 1184.

In certain circumstances, cast iron traps may be required for cast iron baths and in these instances bath traps shall be provided which are manufactured in accordance with the full requirements of B.S.1291.

b) Anti-Syphon Traps

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Limited, Deacon Works Little shampton, Sussex, England or equal and approved.

The trade name for traps manufactured by this company is 'Grevak'.

2.2.4 Pipe Supports

a) Introduction

This deals with pipe supports securing pipes to the structure of buildings for above ground application.

The variety and type of support shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixings to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports, to the maintenance of desired pipe falls and the restraining of pipe movements to a longitudinal axial direction only.

The contractor shall supply and install all steelwork forming part of the pipe support assemblies and shall be responsible for making good damage to builders work associated with the pipe support installation.

The contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection works commence.

b) Steel and Copper Pipes and Tubes

Pipe runs shall be secured by clips connected to pipeangers, wall brackets, or trapeze type supports. 'U' bolts shall not be used as a substitute for pipe clips without the prior approval of the Engineer.

An approximate guide to the maximum permissible supports spacing in metres for steel and copper pipe and tube is given in the following table for horizontal runs.

Size	Steel Tube	Copper Tube
Nominal Bores	to B.S. 659	to B.S. 1387
15mm	1.25m	2.0m
20mm	2.0m	2.5m
25mm	2.0m	2.5m
32mm	2.5m	3.0m
40mm	2.5m	3.0m
50mm	2.5m	3.0m
65mm	3.0m	3.5m
80mm	3.0m	3.5m
100mm	3.0m	4.0m
125mm	3.0m	4.5m
150mm	3.5m	4.5m

The support spacing for vertical runs shall not exceed one and a half times the distances given for horizontal runs.

c) Expansion Joints and Anchors

Where practicable, cold pipework systems shall be arranged with sufficient bends and changes of direction to absorb pipe expansion providing that the pipe stresses are contained within the working limits prescribed in the relevant B.S. specification.

Where piping anchors are supplied, they shall be fixed to the main structure only. Details of all anchor design proposals shall be submitted to the Engineer for approval before erection commences.

The contractor when arranging his piping shall ensure that no expansion movements are transmitted directly to connections and flanges on pumps or other items of plant.

The contractor shall supply flexible joints to prevent vibrations and other Movements being transmitted from pumps to piping systems or vice versa.

2.2.5 Sanitary Appliances

All sanitary appliances supplied and installed as part of the works shall comply with the general requirements of B.S. Code of Practice 305 and the particular requirements of the latest B.S. Specifications.

2.2.6 Pipe Sleeves

Main runs of pipework are to be fitted with sleeves where they pass through walls and floors. Generally the sleeves shall be of P.V.C. except where they pass through the structure, where they shall be mild steel. The sleeves shall have 6mm – 12mm clearance all around the pipe or for insulated pipework all around the installation.

The sleeve will then be packed with slag wool or similar.

2.3 INSTALLATION

2.3.1 Introduction

Installation of all pipework, valves, fittings and equipment shall be carried out under adequate supervision from skilled staff to the relevant codes and standards as specified herein. The contractor shall be responsible for ensuring that all builders work associated with his piping installation is carried out in a satisfactory manner to the approval of the Engineer.

2.3.2 Above Ground Installation

a) Water Services

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls which shall be required are achieved without springing the pipe.

Where falls are not shown or stated elsewhere in the Specification, pipework shall be installed parallel to the lines of the buildings and as close to the walls, ceilings, columns, etc., as is practicable.

All water systems shall be provided with sufficient drain points and automatic air vents to enable them to function correctly.

Valves and other user equipment shall be installed with adequate access for operation and maintenance. Where valves and other operational equipment are unavoidably installed beyond normal reach or in such position as to be difficult to reach from a small step ladder, extension spindles with floor or wall pedestals shall be provided.

Screwed piping shall be installed with sufficient number of unions to facilitate easy removal of valves and fittings, and to enable alterations of pipework to be carried out without the need to cut the pipe.

Full allowances shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any force produced by the pipe movements are not transmitted to valves, equipment or plant.

All screwed joints to piping and fittings shall be made with P.T.F.E. tape. The test pressure shall be maintained by the pump for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main in that time. A general leakage of 4.5 litres per 25mm of diameter, per 1.6 kilometres per 24 hours per 30 metres head, may be considered reasonable but any visible individual leak shall be repaired.

b) Sanitary Services

Soil, waste and vent pipe system shall be installed in accordance with the best standard of modern practice as described in B.S. 5572 to the approval of the Engineer.

The contractor shall be responsible for ensuring that all ground waste fittings are discharged to a gully trap before passing to the sewer via a manhole.

All necessary rodding and inspection facilities within the draining system in positions where easy accessibility is available.

Where a branch requires rodding facilities in a position to which normal access is unobtainable, then that branch shall be extended so as to provide a suitable purpose made rodding eye in the nearest adjacent wall or floor to which easy access is available.

The vent stacks shall terminate above roof level and where stack passes through roof, a weather skirt shall be provided. The contractor shall be responsible for sealing the roof after installation of the stacks.

The open end of each stack shall be fitted with a plastic coated or galvanised steel wire guard. Access for rodding and testing shall be provided at the foot of each stack.

c) Sanitary Appliances

All sanitary appliances associated with the works shall be installed in accordance with the best standard of modern practice as described in C.P. 305 to the approval of the Engineer.

2.4 0 TESTING AND INSPECTION

2.4.1 Site Tests – Pipework Systems

a) Above Ground Internal Water Services Installation

All water service pipe system installed above ground shall be tested hydraulically for a period of one hour to not less than one and half times to design working pressure.

If preferred, testing the pipelines in sections may be done. Any such section found to be satisfactory need not be the subject of a further test when system has been completed, unless specifically requested by the Engineer.

During the test, each branch and joint shall be examined carefully for leaks and any defects revealed shall be made good by the Sub-contractor and the section re-tested.

All necessary precautions to be taken to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be repaired or replaced at the Sub-contractor's expenses.

b) Above Ground Soil Waste and Ventilation System

All soil, waste and ventilating pipe system forming part of the above ground installation, shall be given appropriate test procedures as described in B.S. 5572, 1972.or KS02-254:1986

Smoke tests on above ground soil, waste and ventilating pipe system shall not be permitted.

Pressure tests shall be carried out before any work which is to be concealed is finally enclosed.

In all respects, tests shall comply with the requirements of B.S. 5572.

2.4.2 Site Test – Performance

Following satisfactory pressure test on the pipework system operational tests shall be carried out in accordance with the relevant B. S. Code of practice on the systems as a whole to establish that special valves, gauges, control, fittings, equipment and plant are functioning correctly to the satisfaction of the Engineer.

All hot water pipework shall be installed with pre-formed fibre glass lagging to a thickness of 25mm where the pipe runs above a false ceiling or in areas where the ambient temperature is higher than normal with the result that pipe "sweating", due to condensation will cause nuisance.

All lagged pipes which run in a visible position after erection shall be given a canvas cover and prepared for painting as follows:

- i) Apply a coating of suitable filler until the canvas weave disappears and allow to dry.
- ii) Apply two coats of an approved paint and finish in suitable gloss enamel to colors
- iii) Approved by the Engineer.

All lagging for cold and hot water pipes erected in crawlways, ducts and above false ceiling which after erection are not visible from the corridors of rooms, shall be covered with a reinforced aluminium foil finish banded in colours to be approved by the Engineer.

In all respects, unless otherwise stated, the hot and cold water installation shall be carried out in accordance with the best standard of modern practice and described in C.P.342 and C.P.310 respectively to the approval of the Engineer.

The test pressure shall be applied by means of a manually operated test pump or, in the case of long main or mains of large diameter, by a power driven test pump which shall not be left unattended. In either case precautions shall be taken to ensure that the required pressure is not exceeded.

Pressure gauges should be recalibrated before the tests.

The contractor shall be deemed to have included in his price for all test pumps, and other equipment required under this specification.

The test pressure shall be one and a half times the maximum working pressure except where a pipe is manufactured from a material for which the relevant B.S. specification designates a maximum test pressure.

2.5 STERILISATION OF COLD WATER SYSTEM

All water distribution system shall be thoroughly sterilized and flushed out after the completion of all tests and before being fully commissioned for handover.

The sterilisation procedures shall be carried out in accordance with the requirements of B.S. Code of Practice 301, Clause 409 and to the approval of the Engineer.

3.00 PART 3: GENERAL SPECIFICATIONS FOR PORTABLE FIRE EXTINGUISHER

3.01 INTRODUCTION

The general specification details the requirements for the supply and installation and commissioning of the Portable Fire Extinguishers.

The contractor shall include for all appurtenances and appliances not necessarily called for in this specification or shown on the designs but which are necessary for the completion and satisfactory functioning of the works.

If in the opinion of the Sub-contractor there is a difference between the requirements of the Specifications and the designs, he shall clarify these differences with the Engineer before tendering.

3.02 WATER/CO₂ EXTINGUISHERS

These shall be 9-litre water filled CO₂ cartridge operated portable fire extinguishers and shall comply with B.S. 401 or B.S. 1288 or KSISO 7165:1999 and to the requirements of B.S.1004. Unless manufactured with stainless steel, bodies shall have all internal surfaces completely coated with either a lead tin, lead alloy or zinc applied by hot dipping. There shall be no visibly uncoated areas.

The extinguishers shall be clearly marked with the following:

- a) Method of operation.
- b) The words 'WATER TYPE' (GAS PRESSURE) in prominent letters.
- c) Name and address of the manufacturer or responsible vendor.
- d) The nominal charge of the liquid in imperial gallons and litres.
- e) The liquid level to which the extinguisher is to be charged.
- f) The year of manufacture.
- g) A declaration to the effect that the extinguisher has been tested to a pressure of 24.1 bar (350 p.s.i.).
- h) The number of British Standard 'B.S' 1004 or B.S. 1449.

3.03 PORTABLE CARBON DIOXIDE FIRE EXTINGUISHERS

These shall be portable carbon dioxide fire extinguishers and shall comply with B.S. 1004 or KSISO7165:1999

The body of extinguisher shall be a seamless steel cylinder manufactured to one of the following British Standards; B.S. 401 or B.S. 1288. (EN3:1996)

The filling ratio shall comply with B.S. 5355 with valves fittings for compressed gas cylinders to B.S.341. Where a hose is fitted it shall be flexible and have a minimum working pressure of 206.85 bar (3000 p.s.i.). The hose is not to be under internal pressure until the extinguisher is operated.

The nozzle shall be manufactured of brass gunmetal, aluminium or stainless steel and may be fitted with a suitable valve for temporarily stopping the discharge if such means are not incorporated in the operating head.

The discharge horn shall be designed and constructed so as to direct the discharge and limit the entrainment of air. It shall be constructed of electrically non-conductive material.

The following markings shall be applied to the extinguishers:-

The words "Carbon Dioxide Fire Extinguisher" and to include the appropriate nominal gas content.

- a) Method of operation.
- b) The words "Re-charge immediately after use".
- c) Instructions for periodic checking.
- d) The number of the British Standard B.S. 3326: 1960 or B.S. 5423.
- e) The manufacturer's name or identification markings

3.04 DRY CHEMICAL POWDER PORTABLE FIRE EXTINGUISHER

The portable dry powder fire extinguishers shall comply with BS 1449 or KSISO7165:1999 and BS 1004. The body shall be constructed to steel not less than the requirements of BS 1449 or aluminium to BS 1470 : 1972(EN3: 1996) and shall be suitably protected against corrosion.

The dry powder charge shall be not-toxic and retain its free flowing properties under normal storage conditions. Any pressurizing agent used as an expellant shall be in dry state; in particular compressed air.

The discharge tube and gas tube if either is fitted shall be made of steel, brass, copper or other not less suitable material. Where a hose is provided it shall not exceed 1,060mm and shall be acid and alkali resistant.

Provision shall be made for securing the nozzle when not in use. The extinguisher shall be clearly marked with the following information

- a) The word “Dry Powder Fire Extinguisher”
- b) Method of operation in prominent letters.
- c) The working pressure and the weight of the powder charge in Kilogramme.
- d) Manufacturers name or identification mark
- e) The words “RECHARGE AFTER USE” if rechargeable type.
- f) Instructions to regularly check the weight of the pressure container (gas Cartridge) or inspect the pressure indicator on stored pressure types when fitted, and remedy any loss indicated by either.
- g) The year of manufacture.
- h) The Pressure to which the extinguisher was tested.
- i) The number of this British Standard BS 3465 or BS 5423: 1977.
- j) When appropriate complete instructions for charging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

3.05 AIR FOAM FIRE EXTINGUISHER

These shall be of 9 litres capacity complete with refills cartridges and wall fixing brackets and complying with B.S. EN 3/BS 1449 and BS 1004 with the following specifications:-

Cylinder: to B.S. 1449 or KSISO7165:1999

Necking: to be 76mm outside diameter steel EN 3A 23/4 X 8TPI female thread.

Head cap: to be plastic moulding acetyl resin.

CO2 Cylinder: to be 75gm P.V.C coated.

Internal Finish: to be polythene lining on phosphate coating.

External finish: to be phosphated - One coat primer paint and one coat stove enamel B.S. 381 C.

4.07 FIRE BLANKET

The fire blanket shall be made from cloth woven with pre-asbestos yarn or any other fire proof material and to measure 1800 x 1210 mm and shall be fitted with special tapes folded so as to offer instantaneous single action to release blanket from storing jacket to BS 1721.

4.08 SIGNAGE -FIRE EXIT SIGN

Proceed and procure and install as below;

Print Fire Exit signs on the Perspex plate, 5mm thick, with white colour background as follows:-

1. Lettering IN RED COLOUR of not less than 50mm in height.
2. A pendant sign bearing words, FIRE EXIT and with a directional arrow.

The sign must be capable of being read from both approaches to exit and so is double sided.

4.09 SIGNAGE -FIRE INSTRUCTION NOTICE

Print fire instruction on the Perspex plate, 5mm thick with White Colour

Background measuring 510mm lengthx380mm width as follows;

FIRE INSTRUCTION NOTICE

In the event of fire;

- (1) Raise the alarm by actuating the nearest alarm system point, Sound Siren /gong or Shout Fire
- (2) Attack fire using the nearest available equipment
- (3) Call fire Brigade 222181 or Police 999 and inform your switchboard (PABX) Operator
- (4) Ensure that all personnel not involved in fire fighting evacuation to safety outside the building.
- (5) Close but DO NOT LOCK doors behind as you leave.
- (6) Evacuate the building using stairs or fire escapes do not use Lifts/escalators walk calmly. Avoid panic. Do not stop or return for personal belongings.
- (7) Assemble as per floor outside the building for roll call.

4.00 PART 4: GENERAL SPECIFICATIONS FOR THE SUPPLY, INSTALLATION AND COMMISSIONING OF THE HOSEREEL SYSTEM

4.01 Introduction

The general specification details the requirements for the supply, installation and commissioning of the hose reel installation. The hose reel installation shall comply in all respects to the requirements set out in C.O.P. 5306 PART 1: 1976, AND BS 5274.

4.02 Climatic Conditions

- a) The following climatic condition apply at the site of the works and all plant equipment, apparatus, materials and installations shall be suitable for these conditions.
- b) Where not otherwise stated, all ratings of plant, equipment apparatus shall be interpreted as site rating and NOT sea level or other ratings.
- c) Maximum temperature oC
- d) Minimum Temperature oC
- e) Average Temperature oC –oC

- f) Range of Relative Humidity –%
- g) Altitude M
- h) Latitude o'S
- i) Longitude o'E
- j) Rainfall extremely heavy at certain period of the year.

4.03 Fire Hosereel Pumps

The fire pumpset shall be a fully automatic package unit. The unit shall consist of pumps of appropriate duty at a given head

The complete specification of the package pump set to be as follows:-

- a) **PUMPS**
(Specify)
- b) **PUMP MATERIALS**

Suction and Discharge Casing to be made Grey Iron. Shafts, conveyors, diffusers, impellers and the external elements made from Stainless Steel.

- c) **MOTORS**
(Specify)
- d) **MECHANICAL SEAL**
(Specify)
- e) **BASEFRAME**

Welded fabrication from Mild Steel sections. With facility for lifting unit.

- f) **PIPEWOK**

Medium gauge Galvanized Pipework to B.S. 1387 and Galvanized fittings to B.S. 143/1256. All Pipework to terminate with B.S 4504 NP. 16 Flanges. Flexible connections to be affixed to suction and discharge connections.

- g) **VALVE**

Pump Isolating Valves, Butterfly valve to B.S. 5155 with Cast Iron nylon coated disc and black airtrile liner. Non-Return Valve vertical lift type to be manufactured from Cast Iron with nitrile seal.

- h) **CONTROL PANEL**

Standard Panel cubicle to be manufactured to IP. 55 standards, containing Starters of appropriate ratings

Panel to include power On Light, Run and Trip Lights, Hand/Off/

Auto switches, duty pump selector switch, disconnect switch and line and control circuit fuses, Switches to conform to IP. 54.

Safety features to include 24 volts low voltage controls except for starter coils. Panel mounted on vibration isolators to minimize vibration to electrical equipment.

i) **PRESSURE SWITCH:**

Differential adjustment type switch manufactured to IP.14 standards. Multi-pump sequencing control to be affected from a single pressure instrument, utilizing control circuitry specially for pressure boosting applications.

j) **4" Dial Bottom Connection to B.S. 1780 calibrated in Bars and KPa..**

K) **MEMBRANE TANK**

Fabricated Steel construction housing a natural rubber diaphragm, ideally suited for drinking water applications. Pre charged with Nitrogen to correct pressure at test stage.

The panel shall incorporate HRC main fuses and thermal overloads for the pump motors, timer control unit for minimum run period, start relay incorporating timing element for standby pump delay and one set of voltage free changeover contacts to give remote alarm/indication for the indicator lights motioned.

L) **Pipework**

The Pipework for the hose reel installation shall be galvanized wrought steel tubing "Medium" Grade Class "B" to BS 1387:1967 with pipe threads to BS 21.

M) **Pipe Fittings**

The pipe fittings shall be wrought steel pipe fittings welded or seamless fittings conforming to BS 1740 Part 1971 or malleable iron fittings to BS 143.

All changes in direction will be standard bends or long radius fittings. No. elbows will be permitted.

N) **Flanges**

The flanges shall comply with BS 4504 : 1969. All flanges shall comply to a nominal pressure rating of 16 bar (P.N. 16) and shall be of either cast iron or steel.

O) **Gaskets**

The gaskets for the use with flanges to BS 4304 : 1969 shall comply with BS 4865 part 1 : 1072 for pressure up to and not exceeding 64 bar.

P) **Non-return Valves**

The non-return valves up to and including 80mm diameter shall be to BS 5153 : 1974 with flanges to BS 4504 P.N. 16.

Q) Gate Valves

The gate valves upto and including 80mm shall be as Crane NO. D151 non-rising stem and wedge disc to BS 21 taper thread.

R) Sleeves

Where pipework passes through walls, floors or ceilings, a sleeve shall be provided one diameter larger than the diameter of the pipe, the space between to be packed with mineral wool, to the Engineer's approval.

S) Floor and ceiling plates

Where pipe pass through floors, walls or ceilings, floor, wall and ceiling plates shall be secured around the pipe. The plates shall be of stainless steel construction and will serve no other purpose than to present a net finish, to the exposed installation.

T) Hosereels

The hosereels to the installation shall consist of recess and no-recess automatic hosereels.

All the above hosereels shall comply with BS 5274 : 1976 and BS 3169 : 1970 and is to requirements C.P. 5306 Part I : 1976.

The hosereels shall be supplied and installed complete with first-aid non-kinking hose 30 metres long, with nylon spray/jet/shut-off nozzle fitted. A screw down chrome plated globe valve to BS 1010 to the inlet to the reel.

The orifice to the nozzle is to be not less than 4.3 mm to maintain a minimum flow of 0.4L/s to the jet.

U) Earthing

The hosereel installation shall be electrically earthed by a direct earth connection.

V) Finish Painting

Upon completion of testing and commissioning of the hosereel installation the pipework shall be primed and finish painted with 2 No. coats of paint to the Engineer's requirements.

W) Testing and Commissioning

The hosereel system is to be flushed out before testing to ensure that no builder's debris has entered the system. The system is to be then tested to one and half times the working pressure of the installation to the approval of the Engineer. Simulated fault condition of the pumping equipment, is to be carried out before acceptance of the system by the Engineer and Architect.

X) Instruction Period

The Sub-Contractor shall allow in his contract sum for instructing of use of the equipment to the clients maintenance staff. The period of instruction may be within the contract period but may also be required after the contract period has expired.

The period of time required shall be stipulated by the Client but will not exceed seven days in which time the Clients staff shall be instructed in the operation and maintenance of the equipment.

SCHEDULE OF UNIT RATES

ITEM	DESCRIPTION	UNIT	RATE (KShs)
1.	Sluice valve 100mm	No.	
2.	50mm GI pipe	LM	
3.	50 mm gate vale (pegler)	No.	
4.	Allow for the construction of a standard pump house	No.	
5.	65mm Fire Hydrant (Below Ground)	No.	
6.	9Kg Dry chemical powder fire extinguisher	No.	
7.	Automatic Hand drier	No.	
8.	30m long swinging type hose reel	No	
9	Soap dispenser	No	
10	Hobby booster pump capacity 2.3l/s	No	
11	9kg air foam extinguisher	No	
12	30m long hose reel	No	
13	150mm diameter G.I. Pipe	Lm	
14	150mm PVC pipe	Lm	
15	WC close coupled	No	

ITEM	DESCRIPTION	UNIT	RATE (KShs)
16	WHB pedestal	No	
17	20mm PPRC gate valve	No	
18	25mm PPRC gate valve	No	
19	32mm PPRC gate valve	No	

TECHNICAL SCHEDULE

General Notes to the Tenderer

The tenderer shall submit technical schedules for all materials and equipment upon which he has based his tender sum.

The tenderer shall also submit separate comprehensive descriptive and performance details for all plant apparatus and fittings described in the technical schedules. Manufacturer's literature shall be accepted. **Failure to comply with this may have his tender disqualified.**

Completion of the technical schedule shall not relieve the Contractor from complying with the requirements of the specifications except as may be approved by the Engineer.

TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED

ITEM	DESCRIPTION	MANUFACTURER	COUNTRY OF ORIGIN	REMARKS (Catalogue No.etc.)
A	Water closets			
B	Wash hand basin			
C	Soap dispenser			
D	Toilet roll holder			
E	Soap Dish			
F	Coat hook			
G	Hand drier			
H	UPVC pipes			
I	GMS Pipes			
J	Gate valves			
K	Non-return valves			
L	PPRC pipes			
M	GI Tees			
N	9 litre water/co ² fire extinguisher			
O	4.5 kg Co ² fire extinguisher			

PLUMBING AND DRAINAGE WORKS AT REAL TOWERS

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSH/CTS)
	Note: This element all works quoted for in plumbing and drainage shall be presumed to have included unions, sockets nipples, thread seals etc that will make the installation work satisfactorily. All pipe work shall be as PN 25 PPR pipes and conform to current European Standards for PPR installations.				
A	15mm diam. PPR pipe	20	Lm		
B.	20mm ditto	25	Lm		
C.	25mm ditto	22	Lm		
D.	32mm ditto	20	Lm		
E.	40mm ditto	15	Lm		
F.	50mm ditto	11	Lm		
G.	Extra over tubing for the following: ~ 15mm diam. bend /elbow	16	No		
H.	25mm ditto	17	No		
I.	32mm ditto	18	No		
J.	50mm ditto	10	No		
K.	TEES~ 20mm diameter tee	12	No		
L.	25mm ditto	18	No		
M.	32mm ditto	18	No		
N.	40mm ditto	16	No		
O.	50mm ditto	14	No		
	Total Carried to collection page				

PROPOSED REFURBISHMENT WORKS TO REAL TOWERS

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSH/CTS)
A.	<u>REDUCERS</u> 20-15mm diameter reducers	12	No		
B.	25-15mm ditto	14	No		
C.	25-20mm ditto	16	No		
D.	32-25mm ditto	10	No		
E.	<u>BRASS WORK</u> 20mm diameter approved high pressure screw down, full way gate valve with a wheel head including jointing to the steel tubing	5	No		
F.	25mm ditto	3	No		
G.	32mm ditto	2	No.		
H.	40mm Ditto	2	No.		
I.	<u>Flexible connections</u> 25mm diameter 300mm long approved flexible connection pipe with chromium plated spiral wound metal copper reinforcement polypropylene corrugated pipe including jointing to steel tubing as 'KOPEX" flexible copper plumbing connectors or equal and approved.	10	No.		
	Total carried to collection page				

PLUMBING AND DRAINAGE WORKS

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSH/CTS)
	<p><u>SANITARY APPLIANCES.</u></p> <p>Supply and install the following sanitary appliances as per “Twyford, Duravit, Caro” “NOVA” catalogues or any other equal and approved, including all joints to supply, waste and overflow pipes, plugging and screwing to walls and floors all references made to the above catalogue.</p>				
A.	<p><u>EXECUTIVE WATER CLOSET</u></p> <p>Executive Close coupled water closet suite cream in colour complete WC bowl with horizontal outlet 9 litre cistern with valve less Fittings including the bottom inlet, heavy duty coloured ceramic seal and cover. The suite to be supplied complete with valveless fittings including siphon ½” bottom inlet ball valve ¾” bottom overflow bolts and connecting fitments. Top colour coordinated push button wc connector as NOVA, DURAVIT or equal approved.</p>	6	No		
B.	<p><u>WASH HAND BASIN</u></p> <p>Wash hand basin, size 590x 440mm wide in white colour to BS 3402, complete with the following: -</p> <p>Washbasin with two tap holes and chain stay hole Ref. No. WB 2535 WH</p> <p>Chrome plated Aztec pillar taps ½” Ref. No. AZ 5200 CP</p> <p>Chrome plated tap handles Ref. No. AZ 5800CP</p> <p>Chrome plated chain waste Ref. NO.5823CP</p> <p>Wall supports Ref. No. SR 1319XX as Twyford’s “SOLA 590”</p>	6	No		
C.	<p>Water mixer Bib taps of TAPIS model europlus monoblock tap with 1¼ chrome plated pop –up waste wall supports and to be as H.GROHE or equally and approved</p>	6	No		
	Total carried to collection page				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSH/CTS)
	<u>SANTTARY ACCESSORIES</u>				
A.	SHOWER CUBICLE & ASSOCIATED SERVICES Shower cubicle of size 100cm x 120cm c/w tray ARC size 90cm x90cm white in colour or to the taste of the client to be as Duravit or equal and approved	1	No.		
B.	<u>INSTANTANEOUS SHOWER HEATER</u> Instantaneous shower heater, single phase 250v 50Hz with electric heater rating 6.0kW c/w booster pump. To be as TAPIS or equally approved.	1	No		
C.	<u>SHOWER FITTINGS</u> Shower fittings as H. GROHE XSHPNGCRD1 CROMA 100 shower panel with S/L mixer or equal and approved.	1	NO.		
D.	<u>Hot water cylinder</u> 90 gallons hot water cylinder lagged and painted, complete with 3 kilowatt immersion heater and thermostat.	1	No.		
E.	<u>Hot water cylinder</u> 90 gallons hot water cylinder lagged and painted, complete with 3 kilowatt immersion heater and thermostat.	Item	Item		
	<u>ASSOCIATED INSTALLATION WORKS</u> Allow for any other works that are associated with the installation of the above unit and may have not been captured.				
	Total carried to collection page				

Item	Description	Qty	Unit	Rate	Kshs	Cts
A	<u>KITCHEN SINK</u> Single Bowl Single Drainer, (SBSD) stainless steel sink, size 1500x600 mm, bowl size 430x420mm complete with overflow, waste fittings, plugs, chain stays and 40mm diameter plastic bottle trap with 75mm deep seal complete with a chrome plated sink mixer	4	No			
B	<u>INSTANTANEOUS UNDERSINK HEATER</u> Instantaneous under sink water heater with a loading of about 3kw single phase, 240v,50 HZ with flow rate of 1.5 litres per minute at 40°C fitted with main control knob regulating flow of water to give temperature choice, fitted on the sink in office room.	4	No.			
C	<u>AUTOMATIC HAND DRIER</u> Automatic hand drier operating on infra –red automatic sensing system safety cu-out complete with plugs and fixing screws. The hand drier to have a heating capacity of 2.1kw, performance flow rate of 3.83m ³ /min and to operate on a single phase 240v, 50hz power, to be Wandsworth	8	No.			
D	Bunnie model KD or equal and approved equivalent.					
E	<u>SOAP DISPENSER</u> Soap dispenser size 125x100x290mm holding capacity 1.136litres complete with fixing screws. The dispenser to include the initial charging gel.	8	No			
F	<u>TOILET ROLL HOLDER</u> Toilet roll holder in vitreous china to BS 3402 in white colour of size 165x165mm and recessed into wall. Toilet roll holder to BE AS Twyford's "SEMI RECESSED & ORNAMENTAL" accessories Ref. No. VC 9808 WH	8	No.			
G.	<u>TOILET BRUSH AND HOLDER</u> Toilet brush and holder in vitreous china or equal and approved equivalent	5	No			
	<u>MIRRORS</u> 6mm thick polished plate glass, silver backed mirror with beveled edges, size 610x497mm plugged and screwed to wall with 4No. Chrome plated chrome capped screws and 5mm thick foam back nest.	4	No.			
	Total carried to collection page					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSH/CTS)
	<u>FOUL WATER DISPOSAL</u> Supply and install (fix) the following in pvc soil and waste system to BS 4514 with fittings fixed to manufacturers printed instructions and GP 304 as described by “key Terrain” or other equal and approved. The installation to have all the various sizes of connector’s adaptors, socket reducers holder bats, clips etc as required for the satisfactory function of the system.				
A.	32mm diameter grey pvc	90	Lm		
B.	50mm ditto	60	Lm		
C.	100mm diameter Golden Brown	70	Lm		
D.	100mm diameter grey	80	Lm		
	<u>Extra – over the following: -</u>	16	No		
E.	32mm diameter sweep tee c/w access cap				
F.	40mm ditto	9	No		
G.	100mm ditto	12	No		
H.	100mm ditto WC connector	18	No		
I.	Ditto but vent cowl	4	No		
J.	Ditto But weathering apron	4	No		
K.	Ditto but inspection bend	16	No		
L.	100-32mm diameter boss connector	19	No		
M.	100x100mm – 50mm 4way Terrain” floor trap	6	No		
N.	100mm diameter long radius bend	8	No		
O.	100mm diameter gulley trap complete with 150mm grating and frame including bedding frame in cement and sand mortar and setting gulley on the surrounding with 150mm thick concrete class Q (40) and all the works done to class 20.	4	No		
	Total carried to collection page			A.	

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSH/CTS)
A.	Rehabilitate the Existing manhole size 650mmx 650mm, not exceeding 1.5M averagely 600mm construct using concrete blocks, plaster inside form channels, plaster inside and install a frame size 650x450mm, complete with cast iron cover of the same size making good the surrounding.	8	No		
B.	Allow for builders work connected with these works	ITEM	ITEM		
C.	Portable Fire Equipment's 4.5kg dry powder extinguisher complete with cap, washer, powder CO ₂ gas cartridges chamber and a textile reinforced hose, including fixing to the wall using wall brackets. The extinguisher to conform to BS 5423 as DYRENE Model DC 25-11.340 Kilos (25LBS) or equivalent and approved.	1	No.		
D.	9 litres water / carbon dioxide, fire extinguisher complete with cap, washer, siphon tube, flexible rubber nose nozzle including fixing wall brackets to conform to BS 5423 as DYRENE Model WG 9litres or equal and approved.	1	No		
E.	5KG dry powder fire extinguisher with normal charge and mounting brackets	1	No		
F.	1500x1500mm asbestos fire blanket complete with its casing for storage.	1	No.		
G.	9" (225mm) wall mounted manual Bell	1	No.		
	Total carried to collection page				

COLLECTION PAGE FOR PLUMBING & DRAINAGE

ITEM	DESCRIPTION	AMOUNT (KSH)
1.	Total brought forward from page 117	
2.	Total brought forward from page 118	
3.	Total brought forward from page 119	
4.	Total brought forward from page 120	
5.	Total brought forward from page 121	
6.	Total brought forward from page 122	
	Total For Plumbing & Drainage Works carried to MAIN Summary PAGE	

C. AIR CONDITIONING WORKS AND MECHANICAL VENTILATION WORKS

GENERAL SPECIFICATION FOR MECHANICAL VENTILATION INSTALLATIONS

1.0 SCOPE OF WORK

The scope of the works comprises Installation, Testing, and Commissioning of Mechanical Ventilation and Air Conditioning systems in accordance with Specifications and drawings.

All the necessary elements and details for complete system are to be included. Excluded from the specifications are the following:-

- All concrete works
- All block work
- Electrical wiring, isolators and switch boards, except internal wiring for control system from a local isolator.

2.0 SYSTEM COMPONENTS

Dimensions and capacities of ducts and fans are calculated and based on a specific requirements of air, and on an assumed resistance through grilles, silencers etc. However the installer shall be responsible for the correct functioning of the system. Subsequently it is therefore his duty to size the systems' components with consideration to his offered equipment.

3.0 DRAWINGS

The Engineer's drawings show the main layout and principles for the Ventilation and Air Conditioning Systems. If need for further detailing is required in order to carry out the work, working drawings and details shall be produced for approval by the Engineer before the work is executed.

In preparation of the working drawings care should be taken to coordinate the Ventilation and Air Conditioning works with other services involved and avoid any interference with these.

4.0 MATERIALS AND WORKMANSHIP GENERALLY

In the specification, equipment is generally described according to capacities and a given standard in order to aid in identification of the particular equipment to satisfy specifications. The equipment selected shall be of reputable manufacture with adequate Back-Up service.

If the Engineer finds it necessary, samples of the materials will be submitted for approval before placing an order. The Engineer shall reject any materials which he finds to be of unsatisfactory quality.

Works shall be carried out by competent workmen under experienced supervision. The Engineer shall have the authority to have any substandard work or equipment redone and/ or equipment replaced.

5.0 DUCTWORK GENERALLY

5.1 Ductwork

All seams, joints and connections to plant shall be so made as to reduced air leakage to a minimum. Internal roughness and obstructions to airflow will not be accepted. Sharp edges or corners on the outside of ductwork, flanges, supports, etc will not be accepted. Any part of galvanized ductwork where the galvanizing is damaged during manufacture or erection shall be painted with two coats of aluminum, zinc or other corrosion – resisting paint to the approval of the Engineer.

Where ducts pass through roofs (and external walls where applicable) these shall be fitted with angle flanges and weather cravats to ensure a weather-proof fitting to the building structure.

Connections to equipment shall be made with angle flanged joints. Ductwork which may have to be moved to enable plant to be removed shall incorporate angle flanged joints. For long duct runs, angle flanged joints shall be included at intervals to facilitate any subsequent alternations.

Bends and offsets shall have a minimum throat radius equal to the width of the duct. Where short radius elbows are indicated or agreed by the Engineer as necessary due to site limitations the dimensions and internal vane (s) shall be in accordance with HVCA publication DW/121.

Ductwork shall be constructed by galvanized, cold rolled, close annealed patent flattened sheets. Tests holes shall be provided in branch ducts from grilles and there shall be three or four tests holes on side of duct according to duct depth at each test position. At branch positions there shall be one test hole. Air tight swivel type metal covers shall be fitted over the test holes in such a manner that they shall be readily removed as required.

5.2 Rectangular ductwork

Construction of ductwork shall be as per the following Guidelines:

- Up to 300mm longer side – 22 S.W.G.
- over 300mm and up to 460mm longer size – 20 S.W.G.
- over 460mm and up to 900mm longer side 18 S.W.G (stiffening to be 25mm x 25mm x 3mm. M.S angle at slip joints at 180mm spacing)
- Over 900mm and up to 1370mm. longer side 16 S.W.G. (stiffening to be 30mm x 30mm x 3mm M.S angle at 900mm spacing).
- Over 1370mm longer side – 14 S.W.G. (Stiffening to be 40mm x 40mm x 5mm M.S angle at 900mm. spacing).

Ductwork constructed from 22 and 20 S.W.G sheet shall have folded locked seams and ductwork constructed from 18, 16 and 14 S.W.G. sheets shall have riveted seam with 8 S.W.G rivets at 2" pitch.

Joints for ductwork having a side greater in width than 610mm shall be flanged by means of 30mm x 30mm x 3mm mild steel angles.

Mild steel used as flanges or stiffeners shall be riveted to the ductwork, with 8 S.W.G rivets at 2" pitch. The joint faces of flanges shall be drilled for 10mm bolts at 75mm pitch.

Air tight access doors shall be provided on the ductwork wherever indicated on the drawings. The access doors, of sufficiently heavy construction to avoid distortion, complete with handles, shall be secured by brass wing nuts screwed into studs provided, on galvanized mild steel stiffening frames riveted, or bolted to the ductwork. The access doors shall be provided with felt or rubber gaskets to ensure that when closed they are perfectly tight.

The ductwork shall be installed with all joints air tight and adequately stiffened and braced shall have the largest radius possible with a minimum throat radius of one diameter if possible. Square or miter elbows will only be allowed where shown on the drawings. Turning vanes shall be fitted in square or miter elbows.

Transformer pieces except where situated on fan suction shall be constructed so that the angle on any side does not exceed 15° to the axis of the duct where possible.

Branch ducts shall enter main ducts expansion sections where possible. Where branch ducts occur, at taper or transformation pieces, the length of such pieces in the main duct shall be symmetrical about the axis of the branch.

6. BRACKETS AND SUPPORTS

Supports and brackets for ductworks shall be made adjustable for height, spaced to ensure support and where practicable shall be fitted at each joint of the ductwork. Vertical ductwork shall be supported at each floor level, horizontal ducts at intervals not exceeding 2280mm and adjacent to fans, canvas joints and other equipment. All members of supports in contact with metal ductwork shall be galvanized after fabrication.

Socketed joints shall have a minimum overlap of 50mm in the direction of flow. The joint shall be made with an approved type jointing compound with bolts or rivets at centres not exceeding 50mm. wherever access cannot be made for riveting or bolting self tapping screw of the shortest length which will give a satisfactory joint shall be used in lieu of the rivets or bolts, on size or diameters up to 530mm. All slip joints on circular ductwork are to have a spigot carefully swaged damper leaves shall be multi leaf type. The quadrants shall be of robust construction and securely fixed to the ductwork. The leaves shall be linked with a connecting rod and the ends of the spindle shall be housed in bearings. Dampers are to indicate the full and closed positions and are to be marked and then locked after air Volume has been set.

7.0 JOINTS

7.1 Flexible Joints

Flexible joints shall be provided on fan inlet and outlet connections and elsewhere on the ductwork where indicated. They shall be over the full cross-sectional area of the mating fan inlet or outlet section. The ends of the duct and fan connections shall be in line.

Flexible joints shall consist of, or be protected by, material having a fire penetrating time of at least fifteen minutes when tested in accordance with BS 476 Part 1 Section 3. The material shall be of the glass fibre cloth type, canvas or other approved material. The width of joints from metal edge to metal edge shall not be less than 80mm and more than 250mm.

All flexible joints other than fan inlet connections shall be between flanged ends. The flexible material flange shall be backed by an angle or flat iron flange and the flexible joint flat iron bar used with fan inlets shall not be less than 5mm thick.

7.2 Flexible Connections.

Where flexible connections are indicated or required between rigid ductwork and particular components or items of equipment, the internal diameter of the flexible duct shall be equal to the external diameter of the rigid ductwork and of the spigot type. The use of flexible duct between rigid sections of sheet metal ductwork to change direction or plane will not be permitted except where indicated or expressly authorized by the Engineer.

The flexible duct shall have a liner a cover of tough tear-resistant fabric equal in durability and flexibility to glass fibre shall be impregnated and coated with plastics. It shall be reinforced with a bonded galvanized spring steel wire helix or glass fibre cord or equal and shall be bonded to cover to ensure regular convolutions.

Alternatively the flexible duct shall consist of flexible corrugated metal tubing of stainless steel, aluminium, tinplated steel or aluminium coated steel. The metal may be lined on the inside or the outside or both with plastics materials.

The joints to rigid spigots shall be sealed with a brush coat of pipe jointing paste or mastic compound. Ducts up to 150mm diameter shall be secured with a worm drive type hose clip complying with BS 3628. Ducts over 150mm diameter shall be secured with band clip.

The frictional resistance to air flow per unit length of the flexible duct shall not exceed 50% more than the frictional resistance per unit length of galvanized steel ducts of equivalent diameter. The radius ratio R/D for bends shall not be less than 2, where R is the centre line radius and D is the diameter of the flexible duct.

Flexible ducts shall be suitable for an operating temperature range of 18oC to 120oC and shall comply with BS 476 Part 1, Section 2, Clause 7 (Clause 1; surface of very low flame spread).

8.0 FINISH PAINTING

Upon completion of the installation and after all tests have been carried out to the satisfaction of the Engineer, the plant, equipment, supports, etc. shall be examined and all priming coats damaged during erection made good.

Any plant or equipment, ductwork, etc., which is to be insulated, shall have had the priming paint protection made good before the application of the insulation. After the above procedures have been carried out to the satisfaction of the Project Manager, the various surface shall be given the necessary preparation as recommended by the paint and insulation manufacturers and finish painted in colours to be agreed between the Sub-Contractor and Project Manager, at a later date.

For the purposed of the Specification, however, it shall be deemed that the sub-contractor's tender price was based on the identification requirements for the various services detailed in Code of Practice DW/ 161 Identification of Ductwork as published by the H.V.A.

9.0 AIR INTAKES AND OUTLETS

Unless otherwise indicated fixed louvers on external walls will be fitted at air intake and outlet positions. A galvanized steel wire mesh screen of 20mm diamond mesh and at 2mm diameter wire and complete with a frame of galvanized steel rod with securing lugs or of flat iron shall also be fitted on the inner side of the louvers.

10.0 FANS

10.1 General

Fans shall capable of giving the specified performance when tested in accordance with BS 848. Although estimated values of the resistance to airflow of items of equipment may be indicated, this does not relieve the Contractor to the responsibility for providing fans capable of delivering the required air volume flow through the system.

The make and design of fans shall be approved by the Engineer and evidence supporting noise levels and fan efficiencies shall be provided. Where fans are supplied with noise attenuations, full details of the attenuations shall be given.

Belt driven fans shall be fitted with pulleys suitable for V-belts; pulleys of the taper lock type may be used for drivers up to 30KW output. Alternatively, and in any case above 30KW output, pulleys shall be secured to the fan and the motor shafts by keys fitted into machined keyways. Pulleys shall be keyed to the fan shaft in the overhung position. Keys shall be easily accessible so that they can be withdrawn or tightened

and they shall be accurately fitted so that the gib head does not protrude beyond the end of the shaft.

Machined bolts, nuts and washers only shall be used for the assembly of fans; all bearing surfaces for the heads of bolts or washers shall be count faced. Holding down bolts for fans and meters shall be square section under the head or be fitted with snugs to prevent them turning in the fan base plate when the nuts are tightened.

Any fan which is too large or too heavy for safe manhandling shall be provided with eyebolts or other lifting facilities to enable mechanical lifting equipment to be used.

10.2 Axial Flow Fans

Axial flow fans shall be of either the single stage type or the multi-stage contra-rotating type with each impeller mounted on an independent motor. Casings shall be rigidly constructed of mild steel stiffened and braced to obviate drumming and vibration. Cast iron or fabricated steel feet shall be provided where necessary for bolting to the base or supports. Inlet and outlet ducts shall terminate in flanged rings for easy removal. The length of the fan (s) and motors(s) shall also terminate in flanges in order that the complete section may be removed without disturbing adjacent ductwork. Electrical connections to the motor(s) shall be through an external terminal box secured to the casing. Impellers shall be of steel or aluminium, the blades shall be secured to the hub or the blades and the hub shall be formed in one piece. The hub shall be keyed to a substantial mild steel shaft and the whole statically balanced. Blades shall be of aerofoil section. Shafts shall be carried in two bearings which may be ball roller or sleeve type. Lubricators shall be extended to the outside of the casing.

Where axial flow fans are driven by a motor external to the casing the requirements for pulleys and for V-belt drives and guards shall be met. Unless otherwise indicated a guard is not required for any part of a drive which is within the fan casing. An access door of adequate size shall be provided.

Where axial flow fans of the bifurcated type are indicated the motors shall be out of the air stream. Motors may be placed between the two halves of the casing in the external air or may be placed within the fan casing provided that effective ventilation is given to the motor. Where hot gases or vapours are being handled the motor and the bearings shall be suitable for operation at the temperature they may experience.

11.0 DAMPERS

11.1 General

Sufficient dampers shall be provided to regulate and balance the system. Dampers on grills or diffusers shall be used for fine or secondary control. All dampers shall be sufficiently rigid to prevent fluttering. Unless otherwise indicated, the air leakage past dampers in the fully-closed position shall not exceed 5% of maximum design air flow in the duct. All duct dampers except

fire dampers and self-closing flaps shall be fitted with locking devices and position indicators. Dampers shall be generally in accordance with the appropriate HVCA Specification.

Each Primary control damper shall be fitted with a non-corrodible label stating the actual air flow in M³/S and the cross-sectional area. Alternatively, these figures shall be painted in a visible position on the adjoining ductwork or insulation. The position of a damper as set after final regulation and balancing be indelibly marked on the damper quadrant

11.2 Butterfly dampers

Butterfly dampers shall each consist of two plates edge seamed, and of the same thickness of material as that from which the associated duct is made, and rigidly fixed to each side of a mild steel operating spindle, the ends of which shall be turned and housed in non-ferrous bearings.

11.3 Bifurcating dampers

Bifurcating dampers shall be of 2mm thick sheet for sizes up to 450mm square. For larger sizes, the thickness shall be as indicated. Damper plates shall be rigidly fixed to square section mild steel spindles the ends of which shall be turned and housed in non-ferrous bearings.

11.4 Multi-leaf dampers

Multi – leaf dampers shall consist of two plates of material of the same thickness as the associated duct and rigidly fixed to each side of an operating spindle, the ends of which shall be housed in brass, nylon, oil impregnated sintered metal, PTFE impregnated or ball bearings. The ends of the spindles shall be linked such that one movement of the operating handle shall move each leaf an equal amount. An inspection door shall be provided adjacent to each multi-leaf damper.

On low velocity systems only, multi-leaf damper blades may be of a single plate, at least 1.6mm thick and suitably stiffened, and the blade linkages may be within the duct. Those dampers shall have bearings and inspection doors as specified above.

11.5 Damper Quadrants and Operating Handles

Quadrants and Operating handles shall be of die-cast aluminium with the words "OPEN" and "SHUT" cast on the Quadrants. Quadrants shall be securely fixed to the damper spindles and shall be close-fitting in the quadrant hubs to prevent any damper movement when the damper levers are locked.

11.6 Self-closing dampers

Self-closing dampers shall be designed so as to present the minimum of resistance to airflow under running conditions, to take up a firm, non-fluctuating position under running conditions and to give a tight shut-off when closed. They shall incorporate rubber stops to prevent rattling and to give a tight shut-off when closed. They shall incorporate rubber stops to prevent rattling.

11.7 Sliding Dampers

Sliding dampers shall be provided only where indicated. They shall be of 2mm. thick sheet steel for size up to 450mm square. For larger sizes the thickness shall be as indicated. They shall run in guides lined with felt.

11.8 Iris type dampers.

Iris type dampers may be used in ducting up to 600mm, dia. Or 450mm square. The control shall be on the outside of the damper. The design shall be such that the leaves of the damper can be easily moved for adjustment.

12.0 GRILLES

12.1 Supply & Return Registers

Supply registers shall be manufactured from high grade, extruded Aluminium sections with lacquered finish and fixing shall be 32mm with bevelled edges.

The registers shall have a front set of blades parallel to the long dimension, of rear set of blades parallel to the short dimension, the blades being at 17mm centres and individually adjustable with opposed blade dampers.

12.2 Extract grilles

Extract grilles shall be similar to the Supply Registers described above with the exception that they have only one set of blades parallel to the long dimension.

12.3 Fresh Air Grilles

These shall be manufactured from sheet steel with steel fixing flanges and shall be galvanized after manufacture. An insect screen shall be fixed downstream.

12.4 Diffusers

These shall be manufactured from high grade extruded sections with lacquered finish, bevelled flanges and removable core. Fixing shall be by self-tapping screws through the duct into neck of the diffuser.

12.5 Louvres

Discharge and Fresh air Intake louvres shall be manufactured from mild steel and be galvanized after manufacture. A screen shall be fixed to the back of the louvres

13.0 ATTENUATORS

13.1 General

Purpose made attenuators and sound absorbing material shall be designed to air flow, have adequate strength and cohesion to resist erosion by air flow and do not produce dust. They shall be free of odour and proof against rot, damp and vermin and shall comply with the requirements as to fire and smoke hazards. Adhesives shall be compatible with the sound absorbent material and should preferably be non-flammable.

Where sound absorbent material and /or special attenuators are indicated they shall either reduce the sound level in the space, due to the equipment, to the specified value or shall give the specified sound level attenuation over the specified range of frequencies. Purpose made attenuators shall be tested in accordance with HVRA Laboratory Report No. 55 (Code for the measurement of the performance of unit silencers). The insertion loss and generated noise level for each octave band and the pressure loss of the silencer shall be stated. Attenuators shall be suitable for internal air pressure of 100N/m², air stream temperatures of up to 400c and free from air stream erosion for velocities up to 25m/s. The mineral wool lining shall be rot, vermin and fire-proof. Attenuator casing shall be pre-galvanized sheet steel with galvanized pre-drilled flanges.

13.2 Rectangular Attenuators

These shall be rectangular in section with splitters forming air passages in parallel. The mineral wool lining shall be resin bonded.

13.3 Circular Attenuators

Circular section attenuators will have a central pod. The mineral wool lining shall be retained by expanded steel. The end flanges shall be match drilled to suit the fan which they are fixed to.

13.4 Acoustic lining

Where indicated on the contract drawings, the ductwork shall be acoustically lined. The lining shall consist of resin bonded mineral wool 25mm, thick fixed to the ductwork by a suitable adhesive.

14.0 INSTRUMENTS

14.1 General

The instruments, gauges etc, detailed in this section shall be provided in addition to those associated with specific items of plate and detailed elsewhere, they shall be mounted in accessible positions and shall be easily read.

14.2 System Static Pressure Gauge

A system static pressure gauge shall be provided for the system. It shall consist of a small inclined manometer gauge similar to a filter gauge. The edge of the gauge shall be connected to the system and the other end shall be left open to the plant room but where fluctuation of the static pressure in the plant room may occur the gauge shall be connected across the main fan. Such fluctuations may be caused by wind pressure affecting large open air intakes to the plant room.

15.0 VIBRATION, NOISE AND SOUND INSULATION

15.1 Anti-Vibration Mountings

Fans, compressors, motors and any other vibration-inducing equipment shall be isolated from the building structure by anti-vibration mountings which shall be compressed machinery cork, spring or rubber dampers or rubber/metal bearers as indicated.

15.2 Noise

The noise produced by the installation in the spaces served, in any adjacent buildings and in the open air surrounding plant rooms shall be kept as low as possible. This shall be specially considered in the selection of fan motors, grilles and the internal finish and arrangements of extraction ducting.

Noise level information for fans based on octave analysis data, shall be stated. The reference level and the testing technique shall be stated.

The sound level in the spaces served, due to the equipment shall comply with the recommended design criteria given in the IHVE Guide (Table 13.1 of 1965 Edition). The maximum sound pressure level due to ventilation system must not exceed value mentioned below measured by a reference value of $2 \times 10^{-5} \text{ N/m}^2$ transferred to a logarithmic scale, and measured at any point 1.5 meters above the floor and 1.0 meters from the walls.

The maximum sound pressure level measured at any point 4 metres from the extract point must not exceed 55dB.

The maximum sound pressure level measured at any point 4 metres from fans must not exceed 60dB.

16.0 THERMAL INSULATION

16.1 General Description

All heated, cooled, and recirculated air ductwork shall be insulated.

Insulation shall be of 25mm thick expanded polystyrene sheet, or spray applied polyurethane foam to a uniform thickness of 25mm. Polystyrene shall be fixed so that the edges butt closely without gap and the insulation shall overlap at corners by the thickness of the insulation. The sheet shall be fixed by means of a suitable adhesive and plastic impingement pins attached to the ductwork.

16.2 Ductwork In Plant Room

The insulation described above in Clause 5.1 above shall be finished by the application of a 15mm thick layer of hard setting finish. Insulation shall bevelled thick to angle of 45o at all connecting flanges, access hatches and all other places where operation or maintenance is likely to cause the breaking of the insulation.

The insulation shall then be given a vapour sealing by the application of two coats of anti-condensation paint.

16.3 Ductwork External to plant Rooms

The insulation described in Clause 5.1 above shall finish by the application of two coats of bitumastic.

17.0 ELECTRICAL EQUIPMENT AND WIRING

17.1 Scopes

The responsibility for electrical equipment and wiring shall be as defined as below:-

An on-off starter shall be provided and placed in the appropriate position for connection of the fans required for the installation and within a time agreed with the Engineer fully detailed wiring diagrams for all connections to them shall be availed.

The Installer shall be responsible for the accuracy of all wiring diagrams provided by him and for the correct internal wiring of all pre-wired equipment supplied. The Installer shall reimburse the full cost of abortive or remedial work arising from any error in these aspects.

17.2 General

Unless otherwise indicated all electrical equipment and installation shall be suitable for use in ambient temperatures up to 40°C and relative humidities up to 90%. For tropical climates, electrical equipment shall be suitable for use in the temperature and humidity as indicated; it shall be proof against atmospheric corrosion, including that

of saline air where relevant, and materials shall not be susceptible to mould growth or attack by termite and similar hazards.

17.3 Electrical Motors

Electrical motors shall comply with BS 170 2048 or with BS 2613 and BS 3979 as appropriate. All motors shall have Class E insulation (BS2757) and can be continuously rated.

They shall be screen protected (BS2817) unless otherwise indicated. Under all normal conditions without being overloaded. All motors larger than 0.75kw output shall be three phase, for motors above 15kw output the type of motor and method of starting shall be such as to limit the starting and run-up currents to three times the rated full load current unless otherwise indicated. No motor shall run faster than 25 rev/s unless otherwise indicated.

18.0 INSPECTION, COMMISSION AND TESTING

18.1 General

Unless otherwise indicated tests shall be carried out in accordance with the appropriate BS or CP. Test certificates for works tests, site tests and tests required by BS shall be submitted in duplicate to the Engineer.

18.2 Testing

Where an individual inspection or tests take place at outside the site of the works representatives of the Engineer will be required to be present.

Unless otherwise indicated the contract shall include the cost of all tests, necessary instruments, plant supervision and labour both at work and on site. The accuracy of the instruments shall be demonstrated where so directed by the Engineer.

The site test shall be of at least six hours duration. Any defects or workmanship, materials and performance maladjustments or other irregularities which become apparent during the tests shall be rectified by the supplier at his expense and the tests shall be repeated at his expense to the satisfaction of the Engineer.

The Supplier/Installer's representative present at the site tests shall be fully conversant with the operation of the thermostatic controls and shall be expected to explain the operation and safety controls forming part of the installation to the employer's representatives.

18.2.1 Site Tests

The Installer shall supply all instruments and equipment necessary to carry out site tests and shall arrange with other parties for the testing of associated equipment which may affect the performance of the plants installed under these works.

18.2.2 Site Tests-Fans

All fans shall be charged with suitable lubricant and shall be tested upon completion of the auxiliary system erection to ascertain that the performance of each fan complies with the requirements of the specification.

18.2.3 Completion of Works – Balancing and Commissioning

Following the site tests and prior to handover, Mechanical Ventilation or Air-Conditioning systems shall be balanced by means of grills, dampers and other special controls installed so to give the required air flow rates and where applicable the required temperatures, pressures and humidity conditions in all areas served by the said systems.

The complete system shall be balanced and commissioned as a whole. Sectional balancing and commissioning on any part of the system where this excludes final complete system balancing and commissioning shall not be accepted.

Test volumes within ducts shall be within +5% of the design volumes, and volumes at grills and diffusers shall be within +10% of the design volumes.

When the system has been balanced to the satisfaction of the project manager, it shall be run under complete automatic control for 72 hours continuous operation to ascertain any faults in operation before acceptance and handover. Any faults discovered during this time shall be corrected and another test or tests of 72 hours duration shall be carried out to ensure satisfactory operation, all at the expense of the Supplier/Installer..

During this phase, particular attention shall be paid to:

- The maintenance of cleanliness of all plant and extraction systems during construction and ensuring that extraction systems are cleaned through as part of commissioning.
- The protection of plant, particularly sensitive or fragile items, from the activities of other trades during construction and from dirt and mal operation during commissioning.
- The protection of electrical of electrical equipment from damp during construction and commissioning.

19.0 CONTROL SYSTEM

Particular attention shall be paid to the following features:

- Satisfactory operation of any automatic or manually operated sequence to be used in the event of fire.
- Safety in the event of failure and of sudden resumption of electricity supply.

- Satisfactory operation of safety interlocks designed for the protection of personnel, such as those associated with the high voltage electrically operated plant.

The following items shall be checked and/or tested and recorded on the site Test Certificate:-

- Set devised value of all control devices
- Satisfactory operation of equipment protection devices.
- Satisfactory operation of all sequencing operations and alternate working selections and automatic or manual change-over of duplicate plant.

20.0 NOISE AND SOUND CONTROL

Sound level reading shall be taken with a simple sound level meter using the 'A' scale weighting network. The spaces in which readings shall be taken shall be as agreed with the Engineer but will in general be the following:-

- Plant rooms
- Occupied rooms adjacent to plant rooms
- Outside plant rooms facing air intakes and exhaust to assess possible nuisance to adjacent accommodation. If the adjacent accommodation is private residential building tests may be required at night.
- In the space served by the first grille or diffuser after a fan outlet.
- In any space where, by the addition of special silencing material or techniques of by classification of use, a low level of noise is clearly required.

Alternatively, sound level reading shall be taken using a sound analyzer to give an octave band analysis of the ground spectrum and to pinpoint the frequency values of peak sound levels. The spaces in which readings shall be taken shall be as agreed with the Engineer but will in general be as detailed in paragraph above.

21.0 OPERATING AND MAINTAINANCE INSTRUCTION

The Supplier/Installer shall demonstrate and explain the plant and the method of starting, running and stopping to such staff as the Engineer shall nominate. He shall provide three sets of operating and maintenance instructions which shall be enclosed in durable covers. The operating and maintenance instructions shall include:-

- A brief outline of the operation of the plant.
- Instructions on how to start and stop the plant, noting any safety and / or sequencing arrangements.
- Details of required maintenance with suggested frequency of action
- Details of all lubricating oils and greases required and filter replacement
- Details of each item of plant including the name and address of the manufacturer, type and model, serial number, duty and rating.

The operating and maintenance instructions shall be handed to the Engineer not later than at the end of the commissioning period.

22.0 SPARE PARTS

The Installer shall submit a priced list of any extra materials which he recommends should be purchased for the Ventilating and Air Conditioning Plants and all associated equipment and control gear and extras not supplied as standard. He shall be required to give a guarantee that he will hold sufficient running stock of spare parts for the maintenance of the equipment.

MECHANICAL VENTILATION - SUPPLY SYSTEM

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	BILL NO. 1				
	<u>MECHANICAL VENTILATION - SUPPLY SYSTEM</u>				
	SUPPLY FAN-GROUND- 3RD FLOOR				
A	Supply and install an Centrifugal box 20/20 as den air or equivalent air supply fan capable of delivering 16.7m ³ /s against a pressure drop of 400 pa. The fan to come complete with mounting brackets, anti-vibration mountings and flexible connector.	4	No.		
	SUPPLY FAN -4TH -5TH FLOOR				
B	Supply and install an Centrifugal box 20/20 as den air or equivalent air supply fan capable of delivering 16.7m ³ /s against a pressure drop of 390 pa. The fan to come complete with mounting brackets, anti-vibration mountings and flexible connector.	4	No.		
	DUCT WORK				
C	Galvanized mild steel ductwork 1.2mm (SWG 18) thick complete with bends, transformation pieces, hangers, supports, sleeves, flexible connections, etc.	310	sm		
	AIR SUPPLY GRILLE				
D	600mm x 600mm air supply grille/difusser with dampers	26	No.		
E	200mm x 200mm air supply grille/difusser with dampers	1	No.		
	DOOR REPLACEMENT GRILLE				
F	450mm x 300mm air replacement louvered grilles.	4	No.		
	EXTERNAL GRILLE				
G	3000 x 2000mm external louvered grille with fixed blades.	4	No.		
	FIRE DAMPER				
H	Shutter fire damper complete with fusible link and micro switch for de-activating the fan when damper closes suitable for a 1500 x 800mm duct.	2	No.		
I	Shutter fire damper complete with fusible link and micro switch for de-activating the fan when damper closes suitable for a 2000 x 800mm duct.	2	No.		
	Total carried to Collection Page for Mechanical Ventilation - Supply System				
Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	VOLUME CONTROL DAMPER				
A	Volume control damper suitable for 2000 x 800mm duct	4	No.		
B	Volume control damper suitable for 2000 x 400mm duct	4	No.		

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
C	Volume control damper suitable for 1950 x 400mm duct	1	No.		
D	Volume control damper suitable for 800 x 350mm duct	2	No.		
E	Volume control damper suitable for 700 x 700mm duct	2	No.		
F	Volume control damper suitable for 700 x 400mm duct	2	No.		
G	Volume control damper suitable for 400 x 400mm duct	2	No.		
H	Volume control damper suitable for 450 x 350mm duct	5	No.		
J	Volume control damper suitable for 350 x 300mm duct	4	No.		
K	Volume control damper suitable for 350 x 300mm duct	4	No.		
L	Volume control damper suitable for 250 x 200mm duct	2	No.		
M	Volume control damper suitable for 200 x 200mm duct	2	No.		
N	Volume control damper suitable for 200 x 150mm duct	3	No.		
O	Volume control damper suitable for 150 x 150mm duct	3	No.		
P	FAN CONTROL PANEL				
	Splash proof control panel manufactured from 1.2mm thick sheet with stove enamel finish and clear perplex front cover. The panel shall incorporate isolator contactor phase failure relay, motor starter, overload relay and overheat safety control and fuses. The control panel to include BMS stop/run and fault indication volt-free contact and any other BMS connections.	6	No.		
Total carried to Collection Page for Mechanical Ventilation - Supply System					
Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
A	FAN SILENCER				
	Circular silencer casing constructed from cold formed pre-galvanized sheet steel and absorbent material of acoustic grade resin bonded mineral fibre with erosion resistant lining. The silencer shall be fitted with absorption pod and shall be of size 1800mm diameter x 1200mm long. To be as woods or equal and approved.	6	No.		
B	AIR FILTER				
	Air filter panels mounted on a multiple front withdrawal aluminum frame of size 3000 x 2000mm.	8	No.		
C	ELECTRICAL WORKS				

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Allow for associated electrical works including wiring and conducting from the local isolator provided by others through the control panels to the fans. The distance between the isolator and the fan is approximately 5m. It shall include a push and turn safety switch near the fan for isolation during servicing and maintenance.	item	item		
D	PAINTING WORKS				
	Allow for painting (2 No coats) of the ductwork with suitable matt paint of approved colour.	155	sm		
E	BALANCING OF THE SYSTEM				
	The systems shall be balanced such that the spaces shall be balanced as per the designed flow rates indicated in the drawings. It will be the onus of the tenderer to make sure that the flows are adjusted to meet these requirements.	item	item		
Total carried to Collection Page for Registries Mechanical Ventilation - Supply System					
COLLECTION PAGE FOR REGISTRIES MECHANICAL VENTILATION - SUPPLY SYSTEM					
Item	Description				Total Cost (Kshs)
A	Total cost from page 141				
B	Total cost from page 142				
C	Total cost from page 141-142				
Total Cost for Mechanical Ventilation - Supply System Works carried to Ventilation Collection Page					
Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	<u>MECHANICAL VENTILATION - EXTRACT SYSTEM</u>				
	EXTRACT FAN - GROUND ~ 3RD FLOOR				
A	Supply and install an Centrifugal box 20/20 as den air or equivalent air extract fan capable of delivering 16.7m ³ /s against a pressure drop of 420 pa. The fan to come complete with mounting brackets, anti-vibration mountings and flexible connector.	4	No.		
	EXTRACT FAN -4TH ~ 5TH FLOOR				
B	Supply and install an Centrifugal box 20/20 as den air or equivalent air extract fan capable of delivering 16.7m ³ /s against a pressure drop of 420 pa. The fan to come complete with mounting brackets, anti-vibration mountings and flexible connector.	4	No.		
	DUCT WORK				
	Galvanized mild steel ductwork 1.2mm (SWG 18) thick complete with bends, transformation pieces, hangers, supports, sleeves, flexible connections, etc.	310	sm		

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
C	Air mixers for the fans complete with bends, transformation pieces, hangers, supports, sleeves, flexible connections, etc.	4	sm		
	AIR EXTRACT GRILLE				
D	600mm x 600mm air extract grille/difusser with dampers	18	No.		
E	500mm x 500mm air supply grille/difusser with dampers	14	No.		
	DOOR REPLACEMENT GRILLE				
F	450mm x 300mm air replacement louvered grilles.	12	No.		
	EXTERNAL GRILLE				
G	3000 x 2000mm external louvered grille with fixed blades.	2	No.		
	FIRE DAMPER				
H	Shutter fire damper complete with fusible link and micro switch for de-activating the fan when damper closes suitable for a 1500 x 800mm duct.	2	No.		
I	Shutter fire damper complete with fusible link and micro switch for de-activating the fan when damper closes suitable for a 2000 x 800mm duct.	2	No.		
	Total carried to Collection Page for Mechanical Ventilation - Extract System				
Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	VOLUME CONTROL DAMPER				
A	Volume control damper suitable for 2000 x 800mm duct	2	No.		
B	Volume control damper suitable for 2000 x 400mm duct	1	No.		
C	Volume control damper suitable for 1600 x 400mm duct	1	No.		
D	Volume control damper suitable for 1500 x 400mm duct.	3	No.		
E	Volume control damper suitable for 1300 x 400mm duct.	1	No.		
F	Volume control damper suitable for 1250 x 400mm duct.	2	No.		
G	Volume control damper suitable for 600 x 400mm duct.	1	No.		
H	Volume control damper suitable for 350 x 300mm duct.	14	No.		
I	Volume control damper suitable for 200 x 150mm duct.	3	No.		
J	Volume control damper suitable for 150 x 150mm duct.	3	No.		
	FAN CONTROL PANEL				

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
K	Splash proof control panel manufactured from 1.2mm thick sheet with stove enamel finish and clear perplex front cover. The panel shall incorporate isolator contactor phase failure relay, motor starter, overload relay and overheat safety control and fuses. The control panel to include BMS stop/run and fault indication volt-free contact and any other BMS connections.	1	No.		
	FAN SILENCER				
L	Circular silencer casing constructed from cold formed pre-galvanized sheet steel and absorbent material of acoustic grade resin bonded mineral fibre with erosion resistant lining. The silencer shall be fitted with absorption pod and shall be of size 1800mm diameter x 1200mm long. To be as woods or equal and approved.	4	No.		
Total carried to Collection Page for LABORATORY Mechanical Ventilation - Extract System					
Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	ELECTRICAL WORKS				
A	Allow for associated electrical works including wiring and conducting from the local isolator provided by others through the control panels to the fans. The distance between the isolator and the fan is approximately 5m. It shall include a push and turn safety switch near the fan for isolation during servicing and maintenance.	item	item		
	DUCT PAINTING				
B	Allow for painting (2 No coats) of the ductwork with suitable matt paint of approved colour.	155	sm		
C	BALANCING OF THE SYSTEM				
	The systems shall be balanced such that the spaces shall be balanced as per the designed flowrates indicated in the drawings. It will be the onus of the tenderer to make sure that the flows are adjusted to meet these requirements.	1	item		
D	FLEXIBLE DUCT				
	Allow for Supply, delivery and installation of flexible duct to the satisfaction of the Engineer. The flexible duct to measure 200mm	196	LM		
E	TESTING AND COMMISSIONING				
	Allow for testing and commissioning the whole mechanical ventilation installation to the satisfaction of the Engineer.	1	NO		
Total carried to Collection Page for Mechanical Ventilation - Extract System					
<u>COLLECTION PAGE FOR MECHANICAL VENTILATION - EXTRACT SYSTEM</u>					

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
Item	Description				Total Cost (Kshs)
A	Total cost from page I63				
B	Total cost from page I64				
C	Total cost from page I65				
Total Cost for Mechanical Ventilation - Extract System Works carried to Basement Ventilation Collection Page					
<u>BILL 1 COLLECTION PAGE</u>					
<u>COLLECTION PAGE FOR MECHANICAL VENTILATION - EXTRACT AND SUPPLY SYSTEMS</u>					
Item	Description				Total Cost (Kshs)
A	Total cost from page 163				
B	Total cost from page I65				
Total Cost for Mechanical Ventilation - Extract and Supply Systems Works Carried Forward to Summary Page					

AIR CONDITIONING FOR 4TH, 5TH AND 6TH FLOORS

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
	<u>FOR 4TH , 5TH AND 6TH FLOORS</u>				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	AIR CONDITIONING				
	Supply, deliver and install Air Conditioning equipment as described below. Equipment to be approved before installation.				
	VRF/V INVERTER SYSTEM				
	The Air Conditioning system shall be variable refrigerant flow/volume inverter system which allows connection of multiple indoor units to a single outdoor unit with the following capacities.				
A	VRF/V Outdoor Unit				
	VRF/V Outdoor Unit with a total cooling load of 80.5kw (280,000 Btu/hr). The unit shall be connected to multiple indoor units and operate on R410A refrigerant or	1	NO.		

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
	<u>FOR 4TH , 5TH AND 6TH FLOORS</u>				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	any other non -ozone depleting refrigerant. VRF/V outdoor to be as "TOSHIBA SHRM" outdoor unit, MMY-MAPO1202FT8 or DAIKIN.				
B	<u>4TH& 5TH FLOORS- MEETING BOARDROOM</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 60,000Btu/hr (17.6kw). The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	1	No		
	<u>INDOOR UNITS -4TH& 5TH FLOORS Director's OFFICE</u>				
C	<u>And SENIOR MANAGER's Office</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 36,000Btu/hr (10.56kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	6	no.		
	<u>VRF/V indoor Unit Meeting room for SENIOR MANAGER'S ,</u>				
D	<u>OPEN PLAN LAYOUT ~ 5TH FLOOR</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 24,000Btu/hr (7.1kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	6	NO		
	<u>REFRIGERATION PIPE WORK</u>				
	Copper pipes complete with amourflex insulation 3/4" thick.				
E	9.5mm Copper pipe	280	Lm		
F	12.7mm Copper pipe	36	Lm		
G	19.1mm Copper pipe	64	Lm		
H	22.2mm Copper pipe	200	Lm		
I	28.5mm Copper pipe	36	Lm		
J	34.9mm Copper pipe	64	Lm		
	<u>REFRIGERANT</u>				
K	Allow R410A refrigerant or any other non- ozone depleting refrigerant for	10	NO		

AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS					
	FOR 4TH , 5TH AND 6TH FLOORS				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	charging the Air Conditioning systems comprising of 65kw outdoor unit connected to 10No.31,000Btu/hr indoor units.				
	DRAIN				
A	i) 32mm insulated PVC condensate drainage pipework class"D" including pipe fittings(Tees, reducers and bends).	300	Lm		
	ii). 40mm tubular p - trap	10	No		
	MOUNTING BRACKET				
B	Mounting bracket for the outdoor unit complete				
	with a cage and provided with purpose - made protective steel iron angle frame and all other anchoring accessories including rawl bolts and anti-vibration rubber mounting to engineers approval.	13	No		
	VOLTAGE STABILIZER				
C	Three phase power stabilization unit as Solatek or equal and approved.	13	No		
	Y - BRANCHES				
D	A pair of Y-branches for gas and liquid lines for indoor units connections.	26	No		
	WIRED REMOTE CONTROL				
E	A standard full function wired remote controller mounted on the wall.	13	No		
	ELECTRICAL WORKS				
F	Power supply to outdoor unit (Top of the roof 3phase wire,5core,10mm.	108	Lm		
G	Power supply from the meter reading to DB10mm 5core	165	Lm		
H	Flex wire 2.5mm,3core from the DB to DP switches.	315	Lm		
I	Metal trunking 100mm x 50mm	165	Lm		
J	Cable trail 100mm x 50mm	110	Lm		
K	DP switches 30 Amps	10	No		
L	VRV interconnection communication cable.	310	Lm		
A	AVS 30 for the Indoor Units	10	No		
B	Mounting brackets for Indoors	10	No		
C	Allow for builders works.	1	LOT		

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
	<u>FOR 4TH , 5TH AND 6TH FLOORS</u>				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
D	Allow for testing and Commissioning	1	LOT		
E	TOTAL FROM ABOVE				
F	TOTAL FROM PAGE 166				
G	TOTAL FROM PAGE 167				
	SUB- TOTAL				
	TOTAL WORKS				

AIR CONDITIONING FOR 10TH- 11TH FLOORS

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
	<u>FOR 10TH- 11TH FLOORS</u>				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	AIR CONDITIONING				
	Supply, deliver and install Air Conditioning equipment as described below. Equipment to be approved before installation.				
	VRF/V INVERTER SYSTEM				
	The Air Conditioning system shall be variable refrigerant flow/volume inverter system which allows connection of multiple indoor units to a single outdoor unit with the following capacities.				
A	VRF/V Outdoor Unit				
	VRF/V Outdoor Unit with a total cooling load of 80.5 kw (280,000 Btu/hr). The unit shall be connected to multiple indoor units and operate on R410A refrigerant or any other non -ozone depleting refrigerant. VRF/V outdoor to be as "TOSHIBA SHRM" outdoor unit, MMY-MAPO1202FT8 or DAIKIN.	1	NO.		
B	<u>VRF/V indoor Unit-MEETING ROOM</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 36,000Btu/hr (10.56kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	2	No		
	<u>VRF/V indoor Unit Director MACRO POPULATION</u>				
C	<u>SENIOR MANAGER's Offices</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 36,000Btu/hr (10.56kw).The	6	no.		

	AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS				
	FOR 10TH-11TH FLOORS				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.				
	VRF/V indoor Unit - SENIOR MANAGERS,				
D	MANAGERS OFFICES				
	Finance & Admin Director				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 24,000Btu/hr (7.1kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	4	NO		
	REFRIGERATION PIPE WORK				
	Copper pipes complete with amourflex insulation 3/4" thick.				
E	9.5mm Copper pipe	176	Lm		
F	12.7mm Copper pipe	36	Lm		
G	19.1mm Copper pipe	64	Lm		
H	22.2mm Copper pipe	200	Lm		
I	28.5mm Copper pipe	36	Lm		
J	34.9mm Copper pipe	108	Lm		
	REFRIGERANT				
K	Allow R410A refrigerant or any other non-ozone depleting refrigerant for charging the Air Conditioning systems comprising of 65kw outdoor unit connected to 10No.31,000Btu/hr indoor units.	6	NO		
	DRAIN				
A	32mm insulated PVC condensate drainage pipework class"D" including pipe fittings (Tees, reducers and bends).	180	Lm		
B	40mm tubular p - trap	12	No		
	MOUNTING BRACKET				
C	Mounting bracket for the outdoor unit complete with a cage and provided with purpose -made protective steel iron angle frame and all other anchoring accessories including rawl bolts and anti-vibration rubber mounting to engineers approval.	12	No		
	VOLTAGE STABILIZER				
D	Three phase power stabilization unit as Solatek or equal and approved.	12	No		
	Y - BRANCHES				
E	A pair of Y-branches for gas and liquid lines for indoor units connections.	24	No		
	WIRED REMOTE CONTROL				

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
<u>FOR 10TH-11TH FLOORS</u>					
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
F	A standard full function wired remote controller mounted on the wall.	12	No		
<u>ELECTRICAL WORKS</u>					
G	Power supply to outdoor unit (Top of the roof 3 phase wire, 5 core, 10mm.	108	Lm		
H	Power supply from the meter reading to DB 10mm 5 core	65	Lm		
I	Flex wire 2.5mm, 3 core from the DB to DP switches.	98	Lm		
J	Metal trunking 100mm x 50mm	65	Lm		
K	Cable trail 100mm x 50mm	48	Lm		
L	DP switches 30 Amps	6	No		
M	VRV interconnection communication cable.	110	Lm		
A	AVS 30 for the Indoor Units	6	No		
B	Mounting brackets for Indoors	6	No		
C	Allow for builders works.	1	LOT		
D	Allow for testing and Commissioning	1	LOT		
E	TOTAL FROM ABOVE				
	SUB- TOTAL				
	ADD 16% V.A.T				
	TOTAL WORKS				

AIR CONDITIONING FOR 12TH - 14TH FLOORS

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
<u>FOR 12TH - 14TH FLOORS</u>					
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	<u>AIR CONDITIONING</u>				
	Supply, deliver and install Air Conditioning equipment as described below. Equipment to be approved before installation.				
1	<u>VRV/V INVERTER SYSTEM</u>				
	The Air Conditioning system shall be variable refrigerant flow/volume inverter system which allows connection of multiple indoor units to a single outdoor unit with the following capacities.				
A	<u>VRV/V Outdoor Unit</u>				
	VRV/V Outdoor Unit with a total cooling load of 63.5kw (220,000 Btu/hr). The unit shall be connected to multiple indoor units and operate on R410A refrigerant or any other non -ozone depleting refrigerant. VRV/V	1	NO.		

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
	<u>FOR 12TH - 14TH FLOORS</u>				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	outdoor to be as "TOSHIBA SHRM" outdoor unit,MMY-MAPO1202FT8 or DAIKIN.				
B	<u>VRF/V indoor Unit-MAIN BOARDROOM</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 60,000Btu/hr (17.6kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	2	No		
	<u>VRF/V indoor Unit MEETING ROOMS</u>				
C	<u>DIRECTOR GENERAL'S OFFICE</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 36,000Btu/hr (10.56kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	3	no.		
	<u>VRF/V indoor Unit - SENIOR MANAGERS,</u>				
D	<u>MANAGERS AND OPEN PLAN OFFICES</u>				
	<u>Attachees /Interns</u>				
	Variable refrigerant flow/volume ceiling mounted DUCT type indoor units with a cooling load of 24,000Btu/hr (7.1kw).The indoor unit to be properly installed using prefabricated hanging supports c/w heat pump.	6	NO		
	<u>REFRIGERATION PIPE WORK</u>				
	Copper pipes complete with amourflex insulation 3/4" thick.				
E	9.5mm Copper pipe	176	Lm		
F	12.7mm Copper pipe	36	Lm		
G	19.1mm Copper pipe	64	Lm		
H	22.2mm Copper pipe	200	Lm		
I	28.5mm Copper pipe	36	Lm		
J	34.9mm Copper pipe	64	Lm		
	<u>REFRIGERANT</u>				
K	Allow R410A refrigerant or any other non-ozone depleting refrigerant for charging the Air Conditioning systems comprising of 65kw outdoor unit connected to 10No.31,000Btu/hr indoor units.	6	NO		
	<u>DRAIN</u>				
A	32mm insulated PVC condensate drainage pipework class"D" including pipe fittings(Tees, reducers and bends).	180	Lm		
	40mm tubular p - trap	11	No		

<u>AIR CONDITIONING FOR PARTITIONING WORKS AT REAL TOWERS-BUREAU OF STATISTICS</u>					
	<u>FOR 12TH - 14TH FLOORS</u>				
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHs)
	MOUNTING BRACKET				
B	Mounting bracket for the outdoor unit complete with a cage and provided with purpose -made protective steel iron angle frame and all other anchoring accessories including rawl bolts and anti-vibration rubber mounting to engineer's approval.	6	No		
	VOLTAGE STABILIZER				
C	Three phase power stabilization unit as Solatek or equal and approved.	6	No		
	Y ~ BRANCHES				
D	Apair of Y-branches for gas and liquid lines for indoor units connections.	50	No		
	WIRED REMOTE CONTROL				
E	A standard full function wired remote controller mounted on the wall.	11	No		
	ELECTRICAL WORKS				
F	Power supply to outdoor unit (Top of the roof3phase wire,5core,10mm.	108	Lm		
G	Power supply from the meter reading to DB 10mm 5core	65	Lm		
H	Flex wire 2.5mm, 3core from the DB to DP switches.	98	Lm		
I	Metal trunking 100mm x 50mm	65	Lm		
J	Cable trail 100mm x 50mm	48	Lm		
K	DP switches 30 Amps	6	No		
L	VRV interconnection communication cable.	110	Lm		
A	AVS 30 for the Indoor Units	11	No		
B	Mounting brackets for Indoors	11	No		
C	Allow for builders works.	1	LOT		
D	Allow for testing and Commissioning	1	LOT		
E	TOTAL FROM ABOVE				
	SUB- TOTAL				
	ADD 16% V.A.T.				
	TOTAL WORKS				

	<u>BILL 1 COLLECTION PAGE</u>		
<u>COLLECTION PAGE FOR AIR CONDITIONING SYSTEMS</u>			
Item	Description		Total Cost (Kshs)
A	Total cost for 4 th – 6 th FLOORS		
B	Total cost For 10th - 11th FLOORS		
C	Total cost For 12th - 14th FLOORS		
Total for AIR CONDITIONING Systems Carried Forward to Summary Page			

MAIN-SUMMARY PAGE FOR MECHANICAL WORKS

ITEM	DESCRIPTION	AMOUNT	
		KSHS.	CTS
A	Total For Data Center Works		
B	Total for Plumbing And Drainage Works		
C	Total for Air conditioning (VRV/F) Works		
D	Total for Mechanical Ventilation Works		
E	Provisional Sum for Contingency of Kshs. 5,000,000.00	5,000,000	00
	SUB- TOTAL.....		
	ADD 16% V.A.T.....		
TOTAL CARRIED TO FORM OF TENDER.....			

Amount in words: **Kenya**

Shillings.....

Contract Period.....**Twenty (20)**Weeks

Tenderer's Name.....

Tenderers Signature/Date.....

Address/Telephone.....

PIN No.....V.A.TNO.....

Witness'
 Name.....

Witness' Signature/Date.....

SECTION XI – STANDARD FORM

- (i) Form of Tender
- (ii) Tender securing declaration
- (iii) Confidential Business Questionnaire
- (iv) Form of written power Attorney
- (v) Certificate of bidders visit to site
- (vi) Key personnel
- (vii) Completed works
- (viii) Non-completed works beyond completion date
- (ix) Schedule of on-going projects
- (x) Financial standing
- (xi) Other supplementary information
- (xii) Litigation history
- (xiii) Work methodology
- (xiv) Declaration form (Debarment)
- (xv) Integrity declaration statement
- (xvi) Anti-corruption declaration commitment Pledge
- (xvii) Letter of acceptance
- (xviii) Form of contract agreement
- (xix) Form of security
- (xx) Request for Review Form

SCHEDULES OF SUPPLEMENTARY INFORMATION
SCHEDULE 1:- FORM OF TENDER

[date]

To:[name and address of Procuring Entity]

We offer to execute the
[name and identification number of contract] in accordance with the Conditions of Contract accompanying this Tender for the Contract Price of..... [amount in numbers],..... [amount in words]..... [name of currency].

The Contract shall be paid in the following currencies:

Currency	Percentage payable in currency	Rate of exchange: one foreign equals [insert local]	Inputs for which foreign currency is required
(a)			
(b)			

The advance payment required is:-

Amount	Currency
(a)	
(b)	

We accept the appointment of [name proposed in Tender Data Sheet] as the adjudicator.

or

We do not accept the appointment of [name proposed in Tender Data Sheet] as the Adjudicator, and propose instead that [name] be appointed as Adjudicator, whose daily fees and biographical data are attached.

We are not participating, as Tenders, in more than one Tender in this Tendering process other than alternative Tenders in accordance with the Tendering documents.

Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the contract has not been declared ineligible by the Kenya Government under Kenya's laws or any other official regulations.

This Tender and your written acceptance of it shall constitute a binding Contract between us.

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

We hereby confirm that this Tender complies with the Tender validity and Tender Security required by the Tendering documents and specified in the Tender Data Sheet.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Tenderer: _____

Address: _____

SCHEDULE 2:- TENDER-SECURING DECLARATION

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

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

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

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

We, the undersigned, declare that:

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

We accept that we will automatically be suspended from being eligible for Tendering in any contract with KNBS for the period of time of*[insert **number of months or years**]* starting on*[insert **date**]*, if we are in breach of our obligation(s) under the Tender conditions, because we;

- a) Have withdrawn our Tender during the period of Tender validity specified in the Form of Tender; or
- b) Having been notified of the acceptance of our Tender by KNBS during the period of Tender validity,
 - (i). Fail or refuse to execute the Contract, if required, or
 - (ii). Fail or refuse to furnish the Performance Security, in accordance with the ITT.

We understand this Tender Securing Declaration shall expire if we are not the successful Tenderer, upon the earlier of;

- 1) Our receipt of your notification to us of the name of the successful Tenderer; or
- 2) Thirty days after the expiration of our Tender.

Signed:*[insert **signature of person whose name and capacity are shown**]* In the capacity of*[insert **legal capacity of person signing the Tender Securing Declaration**]*

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

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

Dated on _____ day of _____, _____ *[insert **date of signing**]*

Corporate Seal (where appropriate)

SCHEDULE 3: CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a). 2(b) or 2(c) 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

.....

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 one time:

Kshs.....

Name of your bankers

Branch.....

Are you an agent of the Kenya National Trading Corporation? YES/NO

Part 2(a) ~ Sole Proprietor:

Your name in full.....

Age.....

NationalityCountry of origin

*Citizenship details

Part 2(b) ~ Partnership:

Give details of partners as follows:

Name	Nationality	Citizenship Details*	Shares
------	-------------	----------------------	--------

- 1.....
- 2.....
- 3.....

Part 2(c) - Registered Company:

Private or public

State the nominal and issued capital of the company-

Nominal Kshs.

Issued Kshs.

Give details of all directors as follows:

Name	Nationality*	Citizenship Details**	Shares***
1.....
2.....
3.....
.....

Date Signature of Bidder

**Attach proof of citizenship (Certified Copy of National ID or Passport)
(Compulsory)*

*** Indicate by birth, registration or naturalization (Compulsory)*

**** Attach certified copy of Recent Form CR12 (Compulsory)*

Part 3- Interest in the Firm:

Is there any person / **Kenya National Bureau of Statistics** who has interest in this firm?

Yes****	
---------	--

No****	
--------	--

.....

Date Signature of Bidder

***** Tick (✓) to agree as necessary (Compulsory)*

SCHEDULE 4: FORM OF WRITTEN POWER OF ATTORNEY

The Bidder shall state here below the name(s) and address of his representative(s) who is/are authorized to sign the document and receive on his behalf correspondence in connection with the Bid.

.....
(Name of Bidder's Representative in block letters)

.....
(Address of Bidder's Representative)

.....
(Signature of Bidder's Representative)

Alternate:

.....
(Name of Bidder's Representative in block letters)

.....
(Address of Bidder's Representative)

.....
(Signature of Bidder's Representative)

Note:

To be filled by all Bidders.

*Both representative and alternate **must** attach copy of National Identification card or Passport.*

SCHEDULE 5: CERTIFICATE OF BIDDER’S VISIT TO SITE

PRE-BID SITE VISIT CERTIFICATE

SUPPLY, DELIVERY AND INSTALLATION OF AIR CONDITIONING, DATA CENTER WORKS, PLUMBING & DRAINAGE AND ASSOCIATED WORKS FOR THE KNBS LEASED OFFICE AT REAL TOWERS, UPPERHILL AREA – NAIROBI

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

COMPANY REPRESENTATIVE

NAME:

DESIGNATION:

Date

OFFICIAL STAMP

KNBS REPRESENTATIVE

NAME:.....

SIGNATURE:.....

DATE:.....

OFFICIAL STAMP

Signed

Date

NOTE: This form is to be completed at the time of the organized site visit.

SCHEDULE 6: KEY PERSONNEL

DESIGNATION	NAME	NATIONALITY	SUMMARY OF QUALIFICATIONS AND EXPERIENCE		
			Qualifications	General Experience (Yrs)	Specific Experience (Yrs)
Headquarters Partner/Director or other key staff (give designation)					
Site Office Site Agent					
Foreman					

Note: The Bidder shall list in this schedule the key personnel he will employ from the Contractor's headquarters and from the Contractor's site office to direct and execute the work together with their qualifications, experience, position held and nationality in accordance with Clause 10 of the Conditions of Contract. Where required, use separate sheets to add extra data for column 4). Bidders shall attach certified copies of academic certificates, and CVs of all key staff.

I certify that the above information is correct.

.....
(Signature of Bidder)

.....
(Date)

SCHEDULE 7A: SCHEDULE OF CONSTRUCTION WORKS CARRIED OUT BY THE BIDDER IN THE FIVE YEARS

SCHEDULE 5A: COMPLETED WORKS

DESCRIPTION OF WORKS	NAME OF CLIENT	VALUE OF WORKS (KSHS) *	YEAR COMPLETED/ REMARKS

Note: Bidders shall attach certified copies of letters of award (for each listed project), certified copies of completion certificates.

I certify that the above works were successfully carried out by this Bidder.

.....
(Signature of Bidder)

.....
(Date)

* Value in Kshs using Central Bank of Kenya mean exchange rate at a reference date 7 days before date of BID opening

SCHEDULE 7B: NON-COMPLETED WORKS BEYOND COMPLETION DATE

DESCRIPTION OF WORKS	NAME OF CLIENT	VALUE OF WORKS (KSHS) *	YEAR COMPLETED/ REMARKS

Note: Bidders shall attach certified copies of letters of award (for each listed project), certified evidence for executed works for non-completed projects e.g copy of recent payment certificate.

I certify that the above works were successfully carried out by this Bidder.

.....
(Signature of Bidder)

.....
(Date)

* Value in Kshs using Central Bank of Kenya mean exchange rate at a reference date 7 days before date of BID opening

SCHEDULE 8: SCHEDULE OF ONGOING PROJECTS

DESCRIPTION OF WORKS	NAME OF CLIENT	DATE OF COMMENCEMENT	DATE OF COMPLETION	VALUE OF WORKS (KSHS)	VALUE COMPLETED UP TO DATE %	PHYSICALLY COMPLETED UP TO DATE %

Note: 1. Bidders shall attach certified copies of letters of award (for each listed project) and any certified evidence for executed works e.g. copy of recent payment certificate.

2. Bidders must indicate all their on-going works as at the time of bidding.
Any non-disclosure shall constitute non-responsiveness)

I certify that the above works are being carried out by me and that the above information is correct.

.....
(Signature of Bidder)

.....
(Date)

SCHEDULE 9: FINANCIAL STANDING

- 1 Submit copies of audited profit and loss statements, balance sheet and Cash flow statements for the last two calendar years and estimated projection for the next two years with certified English translation where appropriate. These must be signed by Certified Public Accountant recognized by ICPAK and atleast one Director.
- 2 Give turnover figures for each of the last two (2) financial years. Quote in millions and decimal thereof.

	Year 1(.....)	Year 2(.....)
	Ksh. '000,000	Ksh. '000,000
Roadworks		
Other Construction Engineering works		
Other (specify)		
Total		

SUMMARY OF ASSETS AND LIABILITIES OF THE AUDITED FINANCIAL STATEMENTS OF THE LAST TWO (2) FINANCIAL YEARS.

	Year 1(.....)	Year 2(.....)
	KShs.	KShs.
1. Total Assets		
2. Current Assets		
3. Bank Credit Line Value		
4. Total Liabilities		
5. Current Liabilities		
6. Net Worth (1-4)		
7. Working capital (2+3-5)		

- (a) Name/Address of Commercial Bank providing credit line

.....
.....

- (b) Total amount of credit line

Kshs.....

Attach certified copies of financial bank statements of the last six months.

Attach a certified copy of Undertaking of the Bank to providing the credit.

SCHEDULE 10: OTHER SUPPLEMENTARY INFORMATION

Financial reports for the last three years, balance sheets, profit and loss statements, auditors’ reports etc. List them below and attach copies.

.....

.....

.....

.....

Evidence of access to financial resources to meet the qualification requirements. Cash in hand, lines of credit etc. List below and attach copies of supporting documents. Must submit Bank statements for the last six months, signed and stamped by the issuing bank.

.....

.....

.....

.....

Name, address, telephone, telex, fax numbers of the Bidders Bankers who may provide reference if contacted by the Contracting Authority.

.....

.....

.....

I certify that the above information is correct.

.....
Date

.....
Signature of Bidder

SCHEDULE 11: LITIGATION HISTORY

Information on litigation history in which the Bidder was involved.

OTHER PARTY (IES)	CAUSE OF DISPUTE	AMOUNT INVOLVED (KSHS)

I certify that the above information is correct.

.....
Date

.....
Signature of Bidder

SCHEDULE 12: WORK METHODOLOGY

Give a brief description of how you intend to carry out the work including traffic management and quality assurance of works, in not less than three (3) pages and not more than five (5) pages (typed, font 12 and single spaced).

SCHEDULE 13: DECLARATION FORM (DEBARMENT)

DECLARATION FORM

Date _____

To

**The Director General,
Kenya Bureau of Statistics,
P.O. Box 30266– 00100
NAIROBI**

We (name and address) _____

_____ declare the following:

That we;

- a) Have not been debarred from participating in public procurement.
- b) Have not been involved in and will not be involved in corrupt and fraudulent practices regarding public procurement.

~~~~~

|                |           |      |
|----------------|-----------|------|
| ~~~~~          |           |      |
| Name of Bidder | Signature | Date |

(To be signed by authorized representative and officially stamped)

## **SCHEDULE 14: INTEGRITY DECLARATION STATEMENT**

### **UNDERTAKING BY TENDERER ON ANTI – BRIBERY POLICY / CODE OF CONDUCT AND COMPLIANCE PROGRAMME**

1. Each Tenderer must submit a statement, as part of the Tender documents, in either of the two given formats which must be signed personally by the Chief Executive Officer or other appropriate senior corporate officer of the Tendering company and, where relevant, of its subsidiary in the Kenya. If a Tender is submitted by a subsidiary, a statement to this effect will also be required of the parent company, signed by its Chief Executive Officer or other appropriate senior corporate officer.
2. Tenderers will also be required to submit similar No-bribery commitments from their subcontractors and consortium partners; the Tenderer may cover the subcontractors and consortium partners in its own statement, provided the Tenderer assumes full responsibility.
  - a) Payment to agents and other third parties shall be limited to appropriate compensation for legitimate services.
  - b) Each Tenderer will make full disclosure in the Tender documentation of the beneficiaries and amounts of all payments made, or intended to be made, to agents or other third parties (including political parties or electoral candidates) relating to the Tender and, if successful, the implementation of the contract.
  - c) The successful Tenderer will also make full disclosure [quarterly or semi-annually] of all payments to agents and other third parties during the execution of the contract.
  - d) Within six months of the completion of the performance of the contract, the successful Tenderer will formally certify that no bribes or other illicit commissions have been paid. The final accounting shall include brief details of the goods and services provided that they are sufficient to establish the legitimacy of the payments made.
  - e) Statements required according to subparagraphs (b) and (d) of this paragraph will have to be certified by the company's Chief Executive Officer, or other appropriate senior corporate officer.
3. Tenders which do not conform to these requirements shall not be considered.
4. If the successful Tenderer fails to comply with its No-bribery commitment, significant sanctions will apply. The sanctions may include all or any of the following:
  - a) Cancellation of the contract;

- b) Liability for damages to the public authority and/or the unsuccessful competitors in the Tendering possibly in the form of a lump sum representing a pre-set percentage of the contract value (liquidated).

5. Tenderers shall make available, as part of their Tender, copies of their anti-Bribery Policy/Code of Conduct, if any, and of their-general or project - specific - Compliance Program.

- 6. The Government of Kenya has made special arrangements for adequate oversight of the procurement process and the execution of the contract, and has invited Construction society and other competent Government Departments to participate in the oversight. Those charged with the oversight responsibility will have full access to all documentation submitted by Tenderers for this contract, and to which in turn all Tenderers and other parties involved or affected by the project shall have full access (provided, however, that no proprietary information concerning a Tenderer may be disclosed to another Tenderer or to the public).

**SCHEDULE 15: ANTI-CORRUPTION DECLARATION COMMITMENT/  
PLEDGE**

*(Sections 39, 40, 41, 42, 43 & of the PPD Act, 2005)*

I/We/Messrs.....  
.....

of Street, Building, P O  
Box.....

.....

Contact/Phone/E  
mail.....

declare that Public Procurement is based on a free and fair competitive Tendering  
process which should not be open to abuse.

I/We .....

declare that I/We will not offer or facilitate, directly or indirectly, any inducement  
or reward to any public officer, their relations or business associates, in connection  
with

Tender/Tender No  
.....

for or in the subsequent performance of the contract if I/We am/are successful.

Authorized Signature.....

Name and Title of  
Signatory.....

## LETTER OF ACCEPTANCE

*[Letter head paper of KNBS]*

[date]

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

This is to notify you that your Tender dated [date] for execution of the *[name of the Contract and identification number, as given in the Contract Data Sheet]* for the Contract Price of the equivalent of *[amount in numbers and works]* *[name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by us.

We confirm that *[insert name proposed by KNBS]* to be the Adjudicator.

We accept that *[name proposed by Tenderer]* be appointed as Adjudicator.

Or

We do not accept that *[name proposed by Tenderer]* be appointed as adjudicator, and by sending a copy of this letter of acceptance to *[insert the name of the Appointing Authority]*, we are hereby requesting *[name]*, the Appointing Authority, to appoint the adjudicator in accordance with Clause 44.1 of the Instructions to Tenderers.

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

Please return the contract dully signed.

Authorized Signature: \_\_\_\_\_  
Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

Attachment: Form of Contract

## FORM OF CONTRACT AGREEMENT

This Agreement, made the [day] day of [month], [year] between [name and address of Procuring Entity] (hereinafter called “KNBS”) and [name and address of Contractor] (hereinafter called “the Contractor”) of the other part.

Whereas KNBS is desirous that the Contractor execute [name and identification number of contract] (hereinafter called “the Works”) with the objectives of [insert functional objectives of the works] and KNBS has accepted the Tender by the Contractor for the execution and completion of such works and the remedying of any defects therein in the sum of [contract price in words and figures] (hereinafter called “Contract Price”).

### NOW THIS AGREEMENT WITNESSES AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement;
2. In consideration of the payments to be made by KNBS to the Contractor as hereinafter mentioned, the Contractor hereby covenants with KNBS to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract;
3. KNBS hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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

The Common Seal of \_\_\_\_\_

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

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

In the presence of: \_\_\_\_\_

Tendering Signature of Procuring Entity \_\_\_\_\_

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

## SECTION XII: FORMS OF SECURITY

### A. Tender Security (Bank or Insurance Guarantee)

(Optional)

*[If required, the **Bank or Insurance Company/Tenderer** shall fill in this Guarantee form in accordance with the instructions indicated in brackets.]*

*[insert bank's or insurance company's name, and address of issuing branch or office]*

**Beneficiary:** *[insert name and address of Procuring Entity]*

**Date:** *[insert date]*

**TENDER GUARANTEE No.:** *[insert number]*

We have been informed that *[insert name of the Tenderer; if a joint venture, list complete legal names of partners]* (hereinafter called "the Tenderer") has submitted to you its Tender dated *[insert date]* (hereinafter called "the Tender") for the execution of *[insert name of Contract]* under Invitation for Tenders No. *[insert IFT number]* ("the IFT").

Furthermore, we understand that, according to your conditions, Tenders must be supported by a Tender Guarantee.

At the request of the Tenderer, we *[insert name of bank or insurance company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures expressed in the currency of the Purchaser's Country or the equivalent amount in an international freely convertible currency]* (*[insert amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Tenderer is in breach of its obligation(s) under the Tender conditions, because the Tenderer;

- a) Has withdrawn its Tender during the period of Tender validity specified by the Tenderer in the Form of Tender; or
- b) Does not accept the correction of errors in accordance with the Instructions to Tenderers (hereinafter "the ITT") of the IFT; or
- c) Having been notified of the acceptance of its Tender by KNBS during the period of Tender validity;
  - (i). Fails or refuses to execute the Contract Form, if required, or
  - (ii). Fails or refuses to furnish the Performance Security, in accordance with the ITT.

This Guarantee shall expire;



- a) If the Tenderer is the successful Tenderer, upon our receipt of copies of the Contract signed by the Tenderer and of the Performance Security issued to you by the Tenderer; or
- b) If the Tenderer is not the successful Tenderer, upon the earlier of;
  - (i) Our receipt of a copy of your notification to the Tenderer that the Tenderer was unsuccessful, or
  - (ii) Thirty days after the expiration of the Tenderer's Tender.

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date.

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*/signature(s) of authorized representative(s) /*

**B. Performance Bank or Insurance Guarantee [Unconditional]**

**[The Bank or Insurance Company/successful Tenderer providing the Guarantee shall fill in this form in accordance with the instructions indicated in brackets, if KNBS requires this type of security.]**

*[insert bank's or insurance company's name, and address of issuing branch or office]*

**Beneficiary:** *[insert name and address of Procuring Entity]*

**Date:** *[insert date]*

**PERFORMANCE GUARANTEE No.:***[insert Performance Guarantee number]*

We have been informed that *[insert name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[insert reference number of the Contract]* dated with you, for the execution of *[insert name of Contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a Performance Guarantee is required.

At the request of the Contractor, we *[insert name of Bank or Insurance Company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words]*), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or 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 there under 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 expire not later than thirty days from the date of issuance of the Taking-Over Certificate.

*[Signature of an authorized representative(s) of the Bank or Insurance Company]*

### C. Bank or Insurance Guarantee for Advance Payment

*[Bank's or Insurance Company's Name and Address of Issuing Branch or Office]*

**Beneficiary:** \_\_\_\_\_ *[Name and Address of Procuring Entity]*

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

**ADVANCE PAYMENT GUARANTEE No.:** \_\_\_\_\_

We have been informed that *[name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[reference number of the contract]* dated \_\_\_\_\_ with you, for the execution of *[name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[amount in figures]* (\_\_\_\_\_) *[amount in words]* is to be made against an advance payment guarantee.

At the request of the Contractor, we *[name of Bank or Insurance Company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (\_\_\_\_\_) *[amount in words]* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

We further agree that no change or addition to 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 \_\_\_\_\_ *[name of Procuring Entity]* and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

No drawing may be made by you under this guarantee until we have received notice in writing from you that an advance payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has

been certified for payment, or on the \_\_\_\_ day of \_\_\_\_\_, 2\_\_\_\_, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

Yours truly,

Signature and seal: \_\_\_\_\_

Name of Bank or Insurance Company: \_\_\_\_\_

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

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

**SECTION XIII: APPLICATION TO PUBLIC PROCUREMENT ADMINISTRATIVE  
REVIEW BOARD**

FORM RB 1

**REPUBLIC OF KENYA**  
**PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD**

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

BETWEEN

.....APPLICANT

AND

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

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

**REQUEST FOR REVIEW**

I/We.....,the above named Applicant(s), of address:  
Physical address.....Fax No.....Tel. No.....Email ....., hereby  
request the Public Procurement Administrative Review Board to review the  
whole/part of the above mentioned decision on the following grounds , namely:-

- 1.
- 2.
- etc.

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

- 1.
- 2.
- etc

SIGNED ..... (Applicant)

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

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**FOR OFFICIAL USE ONLY**

Lodged with the Secretary Public Procurement Administrative Review Board on  
..... day of .....20.....

SIGNED  
Board Secretary