LOT 2: VOL.3
TENDER FOR AIR CONDITIONING AND MECHANICAL VENTILATION WORKS AT PROPOSED LECTURE THEATRE AND EXTERNAL WORKS FOR MAMA NGINA UNIVERSITY COLLEGE, GATUNDU

CLOSING DATE: FRIDAY 15TH FEBRUARY, 2019 at 10:00am
KENYATTA UNIVERSITY

PROPOSED ADMINISTRATION BLOCK AND LECTURE THEATRE AT MAMA NGINA UNIVERSITY COLLEGE, GATUNDU

LOT 2–LECTURE THEATRE AND EXTERNAL WORKS

(VOL. 3- AIR VENTILATION AND MECHANICAL VENTILATION WORKS)

BILLS OF QUANTITIES

EMPLOYER
KENYATTA UNIVERSITY
P.O. BOX 43844-00100
NAIROBI.

ARCHITECT
UNIVERSITY ARCHITECTS
P.O. Box 43844-00100
NAIROBI.

PROJECT MANAGER
KENYATTA UNIVERSITY
P.O. Box 43844-00100
NAIROBI.

QUANTITY SURVEYOR
UNIVERSITY QUANTITY SURVEYORS
P.O. Box 43844-00100
NAIROBI.

STRUCTURAL & CIVIL ENGINEER
UNIVERSITY STRUCTURAL ENGINEER
P.O. Box 43844-00100
NAIROBI.

ELECTRICAL ENGINEER
UNIVERSITY ELECTRICAL ENGINEER
P.O. Box 43844-00100,
NAIROBI.

MECHANICAL ENGINEER
UNIVERSITY MECHANICAL ENGINEER
P.O. Box 43844-00100
NAIROBI.

JANUARY 2019
SPECIFICATIONS AND BILLS OF QUANTITIES
FOR THE
PROPOSED ADMINISTRATION BLOCK AND LECTURE THEATRE AT MAMA NGINA UNIVERSITY COLLEGE, GATUNDU

Supplied as part of the Contract for Proposed Administration Block and Lecture Theatre at Mama Ngina University College, Gatundu

ISSUED BY: -
Messrs. Kenyatta University
P.O. Box 43844-00100,
NAIROBI.

PREPARED BY: -
Messrs. Kenyatta University
P. O. Box 43844-00100
NAIROBI.

The Contract for the above mentioned works entered into on the................................ day of ........................................ 2019 by the undersigned parties refers to these Specifications and Bills of Quantities and the Ministry of Public Works General Specifications dated March, 1976 (together with any amendments issued thereto) shall be read and construed as part of the said Contract.

EMPLOYER
MESSRS. KENYATTA UNIVERSITY

CONTRACTOR

SIGNATURE..................................
SIGNATURE..................................

DATE............................... DATE .............................

The contractor is required to check the numbers of the pages of these Bills of Quantities and should he find any missing or in duplicate, or figures indistinct he must inform the Project Manager, Kenyatta University.

Should the contractor be in doubt about the precise meaning of any item or figure for any reason whatsoever, he must inform the Project Manager to enable the correct meaning to be decided before the date for submission of tenders.

No liability will be admitted nor claim allowed in respect of errors in the Contractors’ Tender due to mistakes in the Specifications which should have been rectified in the manner described above.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>VOLUME 1</th>
<th>SIGNATURE PAGE AND SPECIAL NOTES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>INTRODUCTION</td>
<td>3</td>
</tr>
<tr>
<td>SECTION I</td>
<td>INVITATION FOR TENDERS</td>
<td>5</td>
</tr>
<tr>
<td>SECTION II</td>
<td>INSTRUCTIONS TO TENDERERS</td>
<td>6</td>
</tr>
<tr>
<td>SECTION III</td>
<td>GENERAL SPECIFICATIONS FOR PLUMBING WORKS</td>
<td>23 - 44</td>
</tr>
<tr>
<td>SECTION IV</td>
<td>STANDARD FORMS</td>
<td>45 - 61</td>
</tr>
<tr>
<td>SECTION V</td>
<td>BILLS OF QUANTITIES/SCHEDULE OF RATES</td>
<td>62</td>
</tr>
</tbody>
</table>
SECTION I

INVITATION FOR TENDERS

TENDER REF. NO: KU/TNDR/W/049/ACMV-MNUC/2018-2019

TENDER NAME: TENDER FOR AIR CONDITIONING AND MECHANICAL VENTILATION WORKS AT PROPOSED LECTURE THEATRE AND EXTERNAL WORKS FOR MAMA NGINA UNIVERSITY COLLEGE, GATUNDU

1.1 Kenyatta University invites sealed tenders from eligible tenderers for the Air Conditioning and Mechanical Ventilation Works at Proposed Lecture Theatre and external works for Mama Ngina University College, Gatundu qualified and licensed by National Construction Authority in category NCA 6 and above in mechanical engineering services.

1.2 A complete set of tender documents may be obtained by interested candidates upon payment of a non-refundable fee of Ksh.1,000/= (One thousand shillings only) which should deposited in:-

Bank Name: National Bank of Kenya
Branch: Ruiru
Account Name: Kenyatta University
Account Number: 0100359150800

Please bring your banking slip to Kenyatta University (Finance – Cash Office) for an official receipt thereafter you can collect the tender documents from Procurement Department).

1.3 Alternatively, Tender documents can be downloaded free of charge from our website www.ku.ac.ke or click on the link http://www.ku.ac.ke/index.php/about-ku/procurement OR http://www.tenders.go.ke link to GOK tenders websites free of charge.

However candidates who choose to download the documents must notify the Procurement Office immediately for record purposes by email: procurement@ku.ac.ke

1.4 Prices quoted should be net, inclusive of all taxes, and must be in Kenya Shillings and shall remain valid for 90 days from the closing date of the tender.

1.5 Completed tender documents are to be enclosed in plain sealed envelopes, marked with the tender number and name and be deposited in the Tender Box at (Kenyatta University – Procurement Department Reception) or be addressed to (Kenyatta University P.O. Box 43844 – 00100 G.P.O Nairobi) so as to be received on or before Friday 15th February, 2019 at 10:00am

1.6 Tenders will be opened immediately thereafter in the presence of the candidates representatives who choose to attend at (Kenyatta University - Boardroom).

1.7 Site visit is on 05th and 11th February 2019 at 10.00 AM. Attendance register will be signed by all representatives. The Site is located adjacent to Mutomo Primary School near Gatundu Town, Gatundu South Constituency, Kiambu County, Kenya.
SECTION II

INSTRUCTIONS TO TENDERERS

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CLAUSE</th>
<th>PAGE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GENERAL</td>
<td>7</td>
</tr>
<tr>
<td>2. TENDER DOCUMENTS</td>
<td>10</td>
</tr>
<tr>
<td>3. PREPARATION OF TENDERS</td>
<td>10-12</td>
</tr>
<tr>
<td>4. SUBMISSION OF TENDERS</td>
<td>13</td>
</tr>
<tr>
<td>5. TENDER OPENING AND EVALUATON</td>
<td>14-15</td>
</tr>
<tr>
<td>6. AWARD OF CONTRACT</td>
<td>16</td>
</tr>
<tr>
<td>7. CORRUPT AND FRAUDULENT PRACTICES</td>
<td>17</td>
</tr>
</tbody>
</table>
INSTRUCTIONS TO TENDERERS

1. **General/Eligibility/Qualifications/Joint venture/Cost of tendering**

1.1 This Invitation to tender is open to all tenderers with NCA 6 certificate in mechanical engineering.

1.2 All tenderers shall provide the Qualification Information, a statement that the tenderer (including all members of a joint venture and subcontractors) is not associated, or has not been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the Works, and any of its affiliates, shall not be eligible to tender.

1.3 All tenderers shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

1.4 In the event that pre-qualification of potential tenderers has been undertaken, only tenders from pre-qualified tenderers will be considered for award of Contract. These qualified tenderers should submit with their tenders any information updating their original pre-qualification applications or, alternatively, confirm in their tenders that the originally submitted pre-qualification information remains essentially correct as of the date of tender submission.

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

   (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the tender to commit the tenderer:

   (b) total monetary value of construction work performed for each of the last five years:

   (c) experience in works of a similar nature and size for each of the last five years, and details of work under way or contractually committed; and names and addresses of clients who may be contacted for further information on these contracts;

   (d) major items of construction equipment proposed to carry out the Contract and an undertaking that they will be available for the Contract.
qualifications and experience of key site management and technical personnel proposed for the Contract and an undertaking that they shall be available for the Contract.

reports on the financial standing of the tenderer, such as profit and loss statements and auditor’s reports for the past five years;

evidence of adequacy of working capital for this Contract (access to line(s) of credit and availability of other financial resources);

authority to seek references from the tenderer’s bankers;

information regarding any litigation, current or during the last five years, in which the tenderer is involved, the parties concerned and disputed amount; and

proposals for subcontracting components of the Works amounting to more than 10 percent of the Contract Price.

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

the tender shall include all the information listed in clause 1.5 above for each joint venture partner;

the tender shall be signed so as to be legally binding on all partners;

all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;

one of the partners will be nominated as being in charge, authorised to incur liabilities, and receive instructions for and on behalf of all partners of the joint venture; and

the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

To qualify for award of the Contract, tenderers shall meet the following minimum qualifying criteria:

annual volume of construction work of at least 2.5 times the estimated annual cashflow for the Contract;

experience as main contractor in the construction of at least two works of a nature and complexity equivalent to the Works over the last 10 years (to comply with this requirement, works cited should be at least 70 percent complete);

proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed as required for the Works;
(e) a Contract manager with at least five years’ experience in works of an equivalent nature and volume, including no less than three years as Manager; and

(f) liquid assets and or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than 4 months of the estimated payment flow under this Contract.

1.8 The figures for each of the partners of a joint venture shall be added together to determine the tenderer’s compliance with the minimum qualifying criteria of clause 1.7 (a) and (e); however, for a joint venture to qualify, each of its partners must meet at least 25 percent of minimum criteria 1.7 (a), (b) and (e) for an individual tenderer, and the partner in charge at least 40 percent of those minimum criteria. Failure to comply with this requirement will result in rejection of the joint venture’s tender. Subcontractors’ experience and resources will not be taken into account in determining the tenderer’s compliance with the qualifying criteria, unless otherwise stated.

1.9 Each tenderer shall submit only one tender, either individually or as a partner in a joint venture. A tenderer who submits or participates in more than one tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the tenderer’s participation to be disqualified.

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

1.11 The tenderer, at the tenderer’s own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings, and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the tenderer’s own expense.

1.12 The procuring entity’s employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.

1.13 The price to be changed for the tender document shall not exceed Kshs.1,000/=.

1.14 The procuring entity shall allow the tenderer to review the tender document free of charge before purchase.
2. **Tender Documents**

2.1 The complete set of tender documents comprises the documents listed here below and any addenda issued in accordance with clause 2.4 here below:

- (a) These Instructions to Tenderers
- (b) Form of Tender and Qualification Information
- (c) Conditions of Contract
- (d) Appendix to Conditions of Contract
- (e) Specifications
- (f) Drawings
- (g) Bills of Quantities
- (h) Forms of Securities

2.2 The Tenderer shall examine all instructions, forms and specifications in the tender documents. Failure to furnish all information required by the tender documents may result in rejection of his tender.

2.3 Prospective Tenderer making inquiries of the tendering documents may notify Kenyatta University in writing or by cable, telex or facsimile at the address indicated in the letter of invitation to tender. Kenyatta University will respond to any request for clarification received earlier than seven [7] days prior to the deadline for submission of tenders. Copies of the response will be forwarded to all persons issued with tendering documents, including a description of the inquiry, but without identifying its source.

2.4 Before the deadline for submission of tenders, Kenyatta University may modify the tendering documents by issuing addenda. Any addendum thus issued shall be part of the tendering documents and shall be communicated in writing or by cable, telex or facsimile to all Tenderers. Prospective Tenderers shall acknowledge receipt of each addendum in writing to Kenyatta University.

2.5 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, Kenyatta University shall extend, as necessary, the deadline for submission of tenders in accordance with clause 4.2 here below.

3. **Preparation of Tenders**

3.1 All documents relating to the tender and any correspondence shall be in English Language.

3.2 The tender submitted by the Tenderer shall comprise the following:

- (a) The Tender;

- (b) Tender Security, shall be either in form of;
  - i. a bank guarantee;
  - ii. a guarantee by a licensed insurance company in Kenya as provided by the Authority;
  - iii. a letter of credit;
(c) Priced Bill of Quantities/Schedule of Rates for lump-sum Contracts

(d) Any other materials required to be completed and submitted by Tenderers.

3.3 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities/Schedule of Rates. Items for which no rate or price is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities/Schedule of Rates. All duties, taxes and other levies payable by the Contractor under the Contract, as of 30 days prior to the deadline for submission of tenders, shall be included in the tender price submitted by the Tenderer.

3.4 The rates and prices quoted by the Tenderer shall not be subject to any adjustment during the performance of the Contract.

3.5 The unit rates and prices shall be in Kenya Shillings.

3.6 Tenders shall remain valid for a period of ninety (90) days from the date of submission. However in exceptional circumstances, the Employer may request that the tenderers extend the period of validity for a specified additional period. The request and the tenderers’ responses shall be made in writing. A tenderer may refuse the request without forfeiting the Tender Security. A tenderer agreeing to the request will not be required or permitted to otherwise modify the tender, but will be required to extend the validity of Tender Security for the period of the extension, and in compliance with Clause 3.7 - 3.11 in all respects.

3.7 The tenderer shall furnish, as part of the tender, a Tender Security in the amount and form specified in the appendix to invitation to tenderers. This shall be in the amount not exceeding 1 percent of the tender price.

3.8 The format of the Tender Security should be in accordance with the form of Tender Security included in Section G - Standard forms or any other form acceptable to the Employer. Tender Security shall be valid for 30 days beyond the validity of the tender.

3.9 Any tender not accompanied by an acceptable Tender Security shall be rejected. The Tender Security of a joint venture must define as “Tenderer” all joint venture partners and list them in the following manner: a joint venture consisting of” …………”,” …………”,and “………..”.

3.10 The Tender Securities of unsuccessful tenderers will be returned within 28 days of the end of the tender validity period specified in Clause 3.6.
3.11 The Tender Security of the successful tenderer will be discharged when the tenderer has signed the Contract Agreement and furnished the required Performance Security.

3.12 The Tender Security may be forfeited

(a) if the tenderer withdraws the tender after tender opening during the period of tender validity;

(b) if the tenderer does not accept the correction of the tender price, pursuant to Clause 5.7;

(c) in the case of a successful tenderer, if the tenderer fails within the specified time limit to

(i) sign the Agreement, or

(ii) furnish the required Performance Security.

3.13 Tenderers shall submit offers that comply with the requirements of the tendering documents, including the basic technical design as indicated in the Drawings and Specifications. Alternatives will not be considered, unless specifically allowed in the invitation to tender. If so allowed, tenderers wishing to offer technical alternatives to the requirements of the tendering documents must also submit a tender that complies with the requirements of the tendering documents, including the basic technical design as indicated in the Drawings and Specifications. In addition to submitting the basic tender, the tenderer shall provide all information necessary for a complete evaluation of the alternative, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details. Only the technical alternatives, if any, of the lowest evaluated tender conforming to the basic technical requirements shall be considered.

3.14 The tenderer shall prepare one original of the documents comprising the tender documents as described in Clause 3.2 of these Instructions to Tenderers, bound with the volume containing the Form of Tender, and clearly marked “ORIGINAL”. In addition, the tenderer shall submit copies of the tender, in the number specified in the invitation to tender, and clearly marked as “COPIES”. In the event of discrepancy between them, the original shall prevail.

3.15 The original and all copies of the tender shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer, pursuant to Clause 1.5 (a) or 1.6 (b), as the case may be. All pages of the tender where alterations or additions have been made shall be initialed by the person or persons signing the tender.

3.16 Clarification of tenders shall be requested by the tenderer to be received by the procuring entity not later than 7 days prior to the deadline for submission of tenders.
3.17 The procuring entity shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender.

3.18 The tender security shall be in the amount of 1% of the tender price.

4. Submission of Tenders

4.1 The tenderer shall seal the original and all copies of the tender in two inner envelopes and one outer envelope, duly marking the inner envelopes as “ORIGINAL” and “COPIES” as appropriate. The inner and outer envelopes shall:

(a) be addressed to Kenyatta University at the address provided in the invitation to tender;

(b) bear the name and identification number of the Contract as defined in the invitation to tender; and

(c) Provide a warning not to open before Friday 15th February, 2019 at 10:00am

4.2 Tenders shall be delivered to Kenyatta University at the address specified above not later than Friday 15th February, 2019 at 10 am. However, the Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with Sub-Clause 2.5 in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline will then be subject to the new deadline.

4.3 Any tender received after the deadline prescribed in clause 4.2 will be returned to the tenderer un-opened.

4.4 Tenderers may modify or withdraw their tenders by giving notice in writing before the deadline prescribed in clause 4.2. Each tenderer’s modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with clause 3.13 and 4.1, with the outer and inner envelopes additionally marked “MODIFICATION” and “WITHDRAWAL”, as appropriate. No tender may be modified after the deadline for submission of tenders.

4.5 Withdrawal of a tender between the deadline for submission of tenders and the expiration of the period of tender validity specified in the invitation to tender or as extended pursuant to Clause 3.6 may result in the forfeiture of the Tender Security pursuant to Clause 3.11.

4.6 Tenderers may only offer discounts to, or otherwise modify the prices of their tenders by submitting tender modifications in accordance with Clause 4.4 or be included in the original tender submission.
5. Tender Opening and Evaluation

5.1 The tenders will be opened by the Employer, including modifications made pursuant to Clause 4.4, in the presence of the tenderers’ representatives who choose to attend at the time and in the place specified in the invitation to tender. Envelopes marked “WITHDRAWAL” shall be opened and read out first. Tenderers’ and Employer’s representatives who are present during the opening shall sign a register evidencing their attendance.

5.2 The tenderers’ names, the tender prices, the total amount of each tender and of any alternative tender (if alternatives have been requested or permitted), any discounts, tender modifications and withdrawals, the presence or absence of Tender Security, and such other details as may be considered appropriate, will be announced by the Employer at the opening. Minutes of the tender opening, including the information disclosed to those present will be prepared by the Employer.

5.3 Information relating to the examination, clarification, evaluation, and comparison of tenders and recommendations for the award of Contract shall not be disclosed to tenderers or any other persons not officially concerned with such process until the award to the successful tenderer has been announced. Any effort by a tenderer to influence the Employer’s officials, processing of tenders or award decisions may result in the rejection of his tender.

5.4 To assist in the examination, evaluation, and comparison of tenders, the Employer at his discretion, may ask any tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the price or substance of the tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered in the evaluation of the tenders in accordance with Clause 5.7.

5.5 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender (a) meets the eligibility criteria defined in Clause 1.7; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the tendering documents. A substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tendering documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the works; (b) which limits in any substantial way, inconsistent with the tendering documents, the Employer’s rights or the tenderer’s obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other tenderers presenting substantially responsive tenders.

5.6 If a tender is not substantially responsive, it will be rejected, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.
5.7 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:

(a) where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and

(b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.

(c) In the event of a discrepancy between the tender amount as stated in the Form of Tender and the corrected tender figure in the main summary of the Bill of Quantities, the amount as stated in the Form of Tender shall prevail.

(d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the corrected Builder’s Work (i.e. Corrected tender sum less P.C. and Provisional Sums)

(e) The Error Correction Factor shall be applied to all Builder’s Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

(f) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and, with concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security may be forfeited in accordance with clause 3.11.

5.8 The Employer will evaluate and compare only the tenders determined to be substantially responsive in accordance with Clause 5.5.

5.9 In evaluating the tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:

(a) making any correction for errors pursuant to clause 5.7;

(b) Excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities, but including Dayworks where priced competitively.

(c) making an appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with clause 3.12; and

(d) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with clause 4.6
5.10 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in tender evaluation.

5.11 The tenderer shall not influence the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.

5.12 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding Provisional Sums to an non-indigenous sub-contractor.

6. **Award of Contract**

6.1 Subject to Clause 6.2, the award of the Contract will be made to the tenderer whose tender has been determined to be substantially responsive to the tendering documents and who has offered the lowest evaluated tender price, provided that such tenderer has been determined to be (a) eligible in accordance with the provision of Clauses 1.2, and (b) qualified in accordance with the provisions of clause 1.7 and 1.8.

6.2 Notwithstanding clause 6.1 above, the Employer reserves the right to accept or reject any tender, and to cancel the tendering process and reject all tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the action.

6.3 The tenderer whose tender has been accepted will be notified of the award prior to expiration of the tender validity period in writing or by cable, telex or facsimile. This notification (hereinafter and in all Contract documents called the “Letter of Acceptance”) will state the sum (hereinafter and in all Contract documents called the “Contract Price”) that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract. At the same time the other tenderers shall be informed that their tenders have not been successful. The contract shall be formed on the parties signing the contract.

6.4 The Agreement will incorporate all agreements between the Employer and the successful tenderer. Within 14 days of receipt the successful tenderer will sign the Agreement and return it to the Employer.

6.5 Within 21 days after receipt of the Letter of Acceptance, the successful tenderer shall deliver to the Employer a Performance Security in the amount stipulated in the Appendix to Conditions of Contract and in the form stipulated
in the Tender documents. The Performance Security shall be in the amount and specified form

6.6 Failure of the successful tenderer to comply with the requirements of clause 6.5 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Tender Security.

6.7 Upon the furnishing by the successful tenderer of the Performance Security, the Employer will promptly notify the other tenderers that their tenders have been unsuccessful.

6.8 Preference where allowed in the evaluation of tenders shall not be allowed for contracts not exceeding one year (12 months)

6.9 The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening the tender.

6.10 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.

6.11 Contract price variations shall not be allowed for contracts not exceeding one year (12 months)

6.12 Where contract price variation is allowed, the valuation shall not exceed 15% of the original contract price.

6.13 Price variation request shall be processed by the procuring entity within 30 days of receiving the request.

6.14 The procuring entity may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.

6.15 The procuring entity shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.

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

7. **Corrupt and fraudulent practices**

7.1 Kenyatta University requires that the tenderer observes the highest standard of ethics during the procurement process and execution of the contract. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.

7.2 Kenyatta University will reject a tender if it determines that the tenderer recommended for award has engaged in corrupt and fraudulent practices in competing for the contract in question.
Further a tenderer who is found to have indulged in corrupt and fraudulent practices risks being debarred from participating in public procurement in Kenya.
Appendix to Instructions to Tenderers

The following information regarding the particulars of the tender shall complement supplement or amend the provisions of the instructions to tenderers. Wherever there is a conflict between the provision of the instructions to tenderers and the provisions of the appendix, the provisions of the appendix herein shall prevail over those of the instructions to tenderers.

<table>
<thead>
<tr>
<th>INSTRUCTIONS TO TENDERERS REFERENCE</th>
<th>PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Tenderers</td>
<td>Open to tenderers with NCA 6 certificate and above in Mechanical Engineering Services.</td>
</tr>
<tr>
<td>Tender Security</td>
<td>1% of total tender price</td>
</tr>
<tr>
<td>Format and Signing of Tender</td>
<td>All Required documents must be arranged chronologically as listed in the evaluation criteria and clearly marked</td>
</tr>
<tr>
<td>Closing Date</td>
<td>Friday 15th February 2019 at 10:00am</td>
</tr>
<tr>
<td>Site Visit</td>
<td>Tuesday 05th February, 2019 10:00 a.m, and Monday 11th February, 2019 at 10:00 am-to assemble at the site given on page 5</td>
</tr>
<tr>
<td>Tender validity</td>
<td>90 days</td>
</tr>
<tr>
<td>Tender Name</td>
<td>Tender for Air Conditioning and Mechanical Ventilation works at Proposed Lecture theatre and external works for Mama Ngina University College-Gatundu.</td>
</tr>
</tbody>
</table>
## EVALUATION CRITERIA FOR AIR CONDITIONING AND MECHANICAL VENTILATION WORKS AT LECTURE THEATRE AND EXTERNAL WORKS AT MAMA NGINA UNIVERSITY COLLEGE, GATUNDU-LOT2: VOL 3.

### A MANDATORY REQUIREMENTS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td>Provide copy of Company Registration Certificate/ certificate of incorporation.</td>
<td>√</td>
</tr>
<tr>
<td>ii.</td>
<td>Bid Bond of 1% of tender sum from a commercial bank or insurance company approved by PPOA and valid for 120 days from date of tender opening.</td>
<td>√</td>
</tr>
<tr>
<td>iii.</td>
<td>Provide copy of Valid Tax Compliance certificate</td>
<td>√</td>
</tr>
<tr>
<td>iv.</td>
<td>Provide valid certificate of registration with National Construction Authority in category NCA 6 and above in mechanical engineering services.</td>
<td>√</td>
</tr>
<tr>
<td>v.</td>
<td>Provide copy of valid trade/business license</td>
<td>√</td>
</tr>
<tr>
<td>vi.</td>
<td>Bid document to be submitted in two copies clearly marked “Original” and “Copy”</td>
<td>√</td>
</tr>
<tr>
<td>vii.</td>
<td>Submission of valid CR12 form showing the list of directors and shareholding.</td>
<td>√</td>
</tr>
<tr>
<td>viii.</td>
<td>Certified Audited financial report for the last three (3) years 2014-2015, 2015-2016 and 2016-2017</td>
<td>√</td>
</tr>
<tr>
<td>ix.</td>
<td>Dully filled and signed tender questionnaire</td>
<td>√</td>
</tr>
<tr>
<td>x.</td>
<td>Dully filled and signed Confidential business questionnaire</td>
<td>√</td>
</tr>
<tr>
<td>xi.</td>
<td>Current and valid annual contractors practicing license from NCA.</td>
<td>√</td>
</tr>
</tbody>
</table>

### B GENERAL FINANCIAL AND TECHNICAL REQUIREMENTS

#### 1 FINANCIAL REQUIREMENTS

a) Accumulated volume of business. Provide proof of performing/undertaking similar works (air conditioning and mechanical ventilation works) for the last four years. Attach contracts and the relevant certificate of completion/invoices and any other relevant document for the last 4 years.

**These information to be presented in the manner shown on page 22**

- Above Kshs 10 million…………………………………15 marks
- Below Kshs. 10m and above ksh. 5 million…………………10 marks
- Below Kshs.5 million and above Ksh.3 million…………………5 marks
- Below Kshs 3 million……………………………………………………………0 mark

b) Financial Capability (As supported by Audited Accounts for the last three (3) years 2014-2015, 2015-2016 and 2016-2017.

- Current ratio above 2.0………………………………………(15)
- Current ratio below 2.0 and above 1.5………………….. (10)
- Current ratio below 1.5 and above 1………………….. (5)
1. Current ratio below 1………………………………..(0)

2  GENERAL REQUIREMENTS

a) Attach four letters of recommendation from referees two of whom must be current customers within 2016-2018.
   • Four letters – (1Mark for each letter) 5

3  TECHNICAL REQUIREMENTS

a) Provide detailed proposal of key technical members for the proposed project, copies and CV of the proposed team, Enclose certificates. At least Five (5) years’ experience in the position
   • Project Manager (Minimum qualification is degree in mechanical engineering field) – 9 points.
   • Site Agent (Minimum qualification is diploma in related engineering field) – 7 points.
   • Supervisor (Minimum qualification is diploma in related engineering field) – 6 points.
   • Foreman (Minimum qualification is certificate in related engineering field) – 3 points. 25

4  Pagination of the whole document 5

5  Document Presentation
   • Tape bound only
   • Table of content
   • Separators 5

TOTAL 70

NB:
1) Bidders must meet all the mandatory requirements to qualify for general and technical evaluation
2) To qualify for price evaluation, the bidder must score a minimum of 70 %
3) The bidder quoting the lowest price having attained 70% technical score shall be recommended for contract award.
   • Award will be to the lowest evaluated bidder, but no bidder will be awarded more than one volume in both lot one and lot two.
   • Any bidder winning more than one volume in lot one and lot two, only the volume with the highest amount will be awarded. Other volumes will be awarded to the second evaluated

4) Any information provided by the bidder may be verified by the University. If information is found to be false, the company will be disqualified.
5) Site visit dates will be on Tuesday 05th February, 2019 at 10.00 am and Monday 11th February 2019 at 10.00 am.
6) List the equipment to be used in this project in the table provided below:
7) The Site is located adjacent to Mutomo Primary School near Gatundu Town, Gatundu South Constituency, Kiambu County, Kenya
### Accumulated volume of business

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the client</th>
<th>Contract Name</th>
<th>Certificate of Completion</th>
<th>Other Relevant Documents</th>
<th>Tender sum</th>
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<tbody>
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</table>

### On-going projects

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the client</th>
<th>Contract Name/Letter of award</th>
<th>Stage of Completion</th>
<th>Tender sum</th>
</tr>
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</tbody>
</table>

### LIST OF EQUIPMENT

<table>
<thead>
<tr>
<th>NO.</th>
<th>LIST OF EQUIPMENT OWNED</th>
<th>LIST OF EQUIPMENT HIRED</th>
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</table>
# SECTION III

## GENERAL MECHANICAL SPECIFICATION

<table>
<thead>
<tr>
<th>CLAUSE</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>General</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>Quality of Materials</td>
<td>23</td>
</tr>
<tr>
<td>3.</td>
<td>Regulations and Standards</td>
<td>23</td>
</tr>
<tr>
<td>4.</td>
<td>Electrical Requirements</td>
<td>24</td>
</tr>
<tr>
<td>5.</td>
<td>Transport and Storage</td>
<td>24</td>
</tr>
<tr>
<td>6.</td>
<td>Site Supervision</td>
<td>24</td>
</tr>
<tr>
<td>7.</td>
<td>Installation</td>
<td>24</td>
</tr>
<tr>
<td>8.</td>
<td>Testing</td>
<td>25</td>
</tr>
<tr>
<td>9.</td>
<td>Colour Coding</td>
<td>26</td>
</tr>
<tr>
<td>10.</td>
<td>Welding</td>
<td>26</td>
</tr>
</tbody>
</table>
GENERAL MECHANICAL SPECIFICATION

1. **General**

   This section specifies the general requirement for plant, equipment and materials forming part of the Contract Works and shall apply except where specifically stated elsewhere in the Specification or on the Contract Drawings.

2. **Quality of Materials**

   All plant, equipment and materials supplied as part of the Contract Works shall be new and of first class commercial quality, shall be free from defects and imperfections and where indicated shall be of grades and classifications designated herein.

   All products or materials not manufactured by the Contractor shall be products of reputable manufacturers and so far as the provisions of the Specification is concerned shall be as if they had been manufactured by the Contractor.

   Materials and apparatus required for the complete installation as called for by the Specification and Contract Drawings shall be supplied by the Contractor unless mention is made otherwise.

   Materials and apparatus supplied by others for installation and connection by the Contractor shall be carefully examined on receipt. Should any defects be noted, the Contractor shall immediately notify the Engineer.

   Defective equipment or that damaged in the course of installation or tests shall be replaced as required to the approval of the Engineer.

3. **Regulations and Standards**

   The Contract Works shall comply with the current editions of the following:

   a) The Kenya Government Regulations.

   b) The United Kingdom Institution of Electrical Engineers (IEE) Regulations for the Electrical Equipment of Buildings.

   c) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.

   d) British Standard and Codes of Practice as published by the British Standards Institution (BSI)

   e) The Local Council By-laws.

   f) The Electricity Supply Authority By-laws.

   g) Local Authority By-laws.


   i) Kenya Standards
4. **Electrical Requirements**

Plant and equipment supplied under this Contract shall be complete with all necessary motor starters, control boards, and other control apparatus. Where control panels incorporating several starters are supplied they shall be complete with a main isolator.

The supply power up to and including local isolators shall be provided and installed under the Electrical Works. All other wiring and connections to equipment shall form part of this section of the works.

The Contractor shall supply three copies of all schematic, cabling and wiring diagrams for the Engineer’s approval.

The starting current of all electric motors and equipment shall not exceed the maximum permissible starting currents described in the Electricity Supply Company By-laws & Regulations.

All electrical plant and equipment supplied by the Contractor shall be rated for the supply voltage and frequency obtained in Kenya, that is 415 Volts, 50Hz, 3-Phase or 240Volts, 50Hz, 1-phase.

Any equipment that is not rated for the above voltages and frequencies shall be rejected by the Engineer.

5. **Transport and Storage**

All plant and equipment shall, during transportation be suitably packed, crated and protected to minimize the possibility of damage and to prevent corrosion or other deterioration.

On arrival at site all plant and equipment shall be examined and any damage to parts and protective priming coats made good before storage or installation.

Adequate measures shall be taken by the Contractor to ensure that plant and equipment do not suffer any deterioration during storage.

Prior to installation all piping and equipment shall be thoroughly cleaned.

If, in the opinion of the Engineer any equipment has deteriorated or been damaged to such an extent that it is not suitable for installation, the Contractor shall replace this equipment at his cost.

6. **Site Supervision**

The Contractor shall ensure that there is an English-speaking supervisor on the site at all times during normal working hours.

7. **Installation**

Installation of all special plant and equipment shall be carried out by the Contractor under adequate supervision from skilled staff provided by the plant and equipment manufacturer or his appointed agent in accordance with the best standards of modern practice and to the relevant regulations and standards described under Clause 3 of this Section.
8. **Testing**

8.1 **General**

The Engineer reserves the right to inspect and test or witness 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 week’s notice to the Engineer of his intention to carry out any inspection or tests and the Engineer or his representative shall be entitled to witness such tests and inspections.

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

Plant or equipment which is shipped before the relevant test certificate has been approved by the Engineer shall be shipped at the 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.

8.2 **Material Tests**

All material for plant and equipment to be installed under this Contract shall be tested, unless otherwise directed, in accordance with the relevant BS Specification concerned.

For materials where no BS Specification exists, tests are to be made in accordance with the best modern commercial methods to the approval of the Engineer, having regard to the particular type of the materials concerned.

The Contractor shall prepare specimens and performance tests and analyses to demonstrate conformance of the various materials with the applicable standards.

If stock material, which has not been specially manufactured for the plant and equipment specified is used, then the Contractor shall submit satisfactory evidence to the Engineer that such materials conform to the requirements stated herein in which case tests of material may be partially or completely waived.

Certified mill test reports of plates, piping and other materials shall be deemed acceptable.

8.3 **Manufactured Plant and Equipment – Work Tests**

The rights of the Engineer relating to the inspection, examination and testing of plant and equipment during manufacture shall be applicable to the Insurance Companies or Inspection Authorities so nominated by the Engineer.

Clause 8.1 shall apply where appropriate.
8.4 Pressure Testing

All pipework installations shall be pressure tested in accordance with the requirements of the various sections of this Specification.

The installations may be tested in sections to suit the progress of the works but all tests must be carried out before the work is buried or concealed behind building finishes. All tests must be witnessed by the Engineer or his representative and the Contractor shall give 48 hours notice to the Engineer of his intention to carry out such tests.

Any pipework that is buried or concealed before witnessed pressure tests have been carried out shall be exposed at the expense of the Contractor and the specified tests shall then be applied.

The Contractor shall prepare test certificates for signature by the Engineer and shall keep a progressive and up-to-date record of the section of the work that has been tested.

9. Colour Coding

Unless stated otherwise in the Particular Specification all pipework shall be colour coded in accordance with the latest edition of BS 1710 and to the approval of the Engineer or Architect.

10. Welding

All welding unless stated otherwise shall be arc welding.

Gas welding may be employed in certain circumstances provided that specific prior approval is obtained from the Engineer.

Welding codes and symbols shall be to BS 499.

For arc welding, welding, welders, welding processes procedures etc. shall be to BS EN 287 & BS EN 288. Materials for welding shall be grouped as per (published document of the BSI) PD CR 15608. Arc welded joints in steel shall comply with the guidelines in BS EN ISO 25817.

Welders where prior approval shall not be required shall comply with BS 4872.

Generally all welding shall comply with the requirements of BS EN 1011.

10.1 Welder’s Qualifications

Any welder employed on this Contract shall have passed the trade tests as laid down by the Government.

The Engineer may require to see the appropriate certificate obtained by any welder and should it be proved that the welder does not have the necessary qualifications the Engineer may instruct the Contractor to replace him by a qualified welder.
General & Particular Specifications for Air-Conditioning
Mechanical Ventilation & Refrigeration Installations
PART 1 GENERAL SPECIFICATION

1. SCOPE

Provide and demonstrate all materials, fittings, accessories, for complete working systems as specified including whole of plant, tackle, tools, instruments, scaffolding, ladders, hoists, fencing, temporary guards and other equipment and labour, both skilled and unskilled to unload, store, hoist and fix all materials except as other Trade Contractor will afford facilities as specified in the Main Contract document.

Include any fitting or accessory obviously necessary always provided that there will be no responsibility for design discrepancies, errors or omissions.

2. STANDARDS & REGULATIONS

The Contract Works shall comply with the current editions of the following:

a) The Kenya Government Regulations.
b) The United Kingdom Institution of Electrical Engineers (IEE) Regulations for the Electrical Equipment of Buildings.
c) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.
d) British Standard and Codes of Practice as published by the British Standards Institution (BSI)
e) The Local Council By-laws.
f) The Electricity Supply Authority By-laws.
g) Local Authority By-laws.
   The Kenya Bureau of Standards

3. LAYOUT

Install materials neatly, unobtrusively and without interference with other items, with runs, equipment, etc. adjusted from the positions shown on drawings to suit final arrangements, room layouts, architectural features, etc., as shown on the current architects and/or structural engineers drawings and/or as otherwise advised. Notify any difficulties.

4. ALTERNATIVES

Use materials, components and equipment that conform in every detail to the specified requirements which may be at variance with the information lodged with certain manufacturers and suppliers in respect of particular items of plant and equipment, or, where not so specified, conform to the appropriate British Standard Specification.

Alternatives shall be approved in writing by the Project Manager with the consent of the Engineer. It is stressed that the actual tender price must be based on the materials, components and equipment specified.
5. INFORMATION NOTATION

Provide to the recommendations of the Chartered Institution of Building Services Engineers permanent detailed information on plant labels, instrument graduations, test certificates, as fitted drawings, etc. with both SI Metre Kilogram second and Imperial Foot Pound, Second Units other than for linear dimensions of plans, pipe bores, duct sizes etc. for which use SI only.

6. IDENTIFY

Identify all provided items, pipes, ducts, etc. except where use and connection is reasonably obvious for operation and maintenance, to BS 1710 with also direction of flow, with labels engraved with as applicable name, number, manufacture name, reference number and date, capacity, rating, speed, frequency, voltage, full load and starting current, phase(s) and all relevant details for operation and maintenance. Include all valves in plant rooms, crawl ways and main ducts. Labels to be 4mm thick clear plastic with 6mm high black filled letters on reverse side two screw fixed where an appropriate 'cold' surface, or 2mm thick brass with white filled letters on front side where surface is 'hot' or secured by brass chain where no suitable surface.

Provide diagram for each area indicating circuits and location of all items by number, principle pipe and duct sizes and giving all code details and colours, one copy printed onto plastic film wall mounted under clear Perspex in the area with further copies in the instruction manual.

Modify these methods to those already in use by the Employer where so specified or later directed and amend or replace any effected existing identification.

Submit for approval all proposed identification details.

7. PAINTING AND CORRISION

Apply paint only to the items listed below and/or as later specified to all pipework plant and equipment in plant rooms, concealed pipework etc., in trenches, crawlways, vertical shafts, false ceilings etc., to all ferrous metal, pipework and surfaces, to be thermally insulated and to all supporting steelwork.

That is paint for corrosion protection except in visible user areas, where only clean down and leave ready for painting by others.

For the following descale and clean by wire brushing and apply paint etc.:-

1. Plant, equipment, steelwork etc. where NOT insulated - one coat of red or grey oxide primer before erection followed by a second coat after erection. Where internal follow with undercoat and two top coats of paint to provide a hard gloss finish, where external similar but three top coats and matt finish.
2 Pipe work where NOT insulated - ferrous pipework one coat of red or grey oxide primer immediately after erection. Pipes of all materials an undercoat and top coats as in 1.

3 Pipe work etc. where insulated (ferrous pipes only) - one coat of bituminous paint immediately after erection followed by a second coat and immediately prior to the application of the insulation.

4 Thermal insulation - the necessary coats of size followed by undercoat and top coats as 1.

5 'Bright' metal - all 'bright' metal parts such as chromium plating, small bore copper connections to gauges etc., to be burnished and polished.

All paints are to be suitable for their purpose, such as be heat resisting where necessary, and be of a colour approved prior to the commencement of painting.

Where a galvanised finish is specified and is found to be unobtainable within the time required obtain equipment of standard finish and galvanise or zinc spray by the 'Schori' process. All equipment so treated is to be completely dismantled and afterwards re-assembled with special attention to earth contact surfaces to ensure metal contact without the intervention of the substance with which they have been treated.

Where dissimilar metals and/or materials are used together such further precautions are to be taken to avoid chemical or electrolytic action occurring. This particularly refers where copper with zinc and/or aluminium or aluminium alloys are used.

8. EQUIPMENT CONNECTION

Connect equipment or apparatus not supplied as later specified or as may be later required as a variation during the currency of the contract and defects liability period. For all such equipment check thoroughly and test each item, and within 48 hours of delivery give written notification of the general results of the check and all tests made with a list of any parts missing or damaged or any other deficiency, after which the equipment will be deemed to have been accepted as complete and in good condition, subject only to any notified damage or efficiency and will then be considered as supplied under the Contract. Where equipment to be connected is not complete with integral gas cock, governor, water stopcocks, etc., make final connections through suitable cocks, etc., all as necessary.

9. WORKS TESTS

Test at works all items for which this is required by the appropriate British Standard Specification, by this Specification and otherwise as may be directed.
10. TEST AND COMMISSION

Test and commission each section of the works as appropriate and/or specified and demonstrate that each section will operate as specified having controls correctly set and free in operation and all instruments correctly calibrated.

Provide for testing all fuel, electricity, water, media and equipment, with instruments having calibration certificate from any approved body dated not more than 3 months prior to use.

Arrange for test and commission assistance from equipment and/or control manufacturers.

Provide all test connectors and facilities needed and leave as a permanent feature.

Procedure to include pressure test of each:

Water system at its normal operating temperature. Demonstrate rate of pressure loss is not excessive and all joints are watertight. Following successful test flush system through, sterilise by chlorine for hot and cold water services.

Oil system as water but using kerosene.

Gas system as water but using nitrogen and brush joints with soap solution.

Test pressures to be as specified, or, where not specified the greater of twice the working pressure or 7.00 bar for water, 3.50 bar for oil and 1.75 bar for gas.

11. TEST NOTICE AND RECORD

Give 7 days notice of each test giving time and place and arrange for witness as directed. Submit for approval within 7 days of each test, and, for Works Tests before delivery, 3 copies of a test record certificate signed by all witnesses and include a copy of each approved certificate in the Instruction manuals.

12. OPERATION AND INSTRUCTION

When installation is in satisfactory working order and so notified in writing put into normal service for seven days from the date of building or building section completion under skilled supervision and attention during the hours of 9.00a.m. to 6.00p.m. During this period lubricate and maintain all moving parts and instruct the Employer's staff in the operation and indemnify against any damage or injury to the Works or to any person or to any property, and against all actions, suits, claims, demands, costs, charges and expenses arising in connection therewith occasioned by negligence, defective materials or workmanship, or by defective design, including the whole of the design.

The Employer may require to use any part of the installation which is suitable for use and, in the event of this involving additional attention and/or effecting defects liability, give detailed written
notification and negotiate scales of charges and/or advise as to the reduction of defects liability period and the cost to effect a suitable insurance so as to avoid such reduction.

13. INSTRUCTIONS

Provide two proof copies for acceptance during commissioning followed by 3 bound A4 size 4 ring clip or equal binders printed with names of project, system, designer and installer of the accepted instructions all in accordance with BSRIA Application Guide 1/87.1 each containing:

1. System description giving design parameters, capacities and methods of regulation and control.

2. Schedule of all fixed plant and equipment.

3. Indexed list of and followed by maintenance, operating, oiling, control and regulation instructions for each unit installed for which such instructions are reasonably required.

4. Schedule of oils and greases needed indicating frequency of application.

5. List of tools and spares supplied and/or needed indicating sources of replacement.

6. List of all test records followed by copies.

7. Copy of identification codes.

8. List of all record as fitted, detail and manufacturers drawings, wiring diagrams, charts etc. produced followed by a copy of each.

Page numbers within each section to be numbered.

14. WELDING

Site welding is permissible provided each welder has required certificates for such work. All welding shall be to British Standards and Kenya Bureau of Standards.

Provide for welding all equipment needed including, where required but not available, an adequate electricity supply, comply with all regulations and safety precautions and pay all associated charges.

Paint all welds one coat bituminous paint within 60 minutes of completion.

15. FOUNDATION BOLTS AND ALIGNMENT

For each item of equipment supplied which has moving parts and wherever else specified and/or recommended by its manufacturer, provide, locate and supervise grouting in, approved foundation
bolts of straight shank type threaded at each end with nut and square mild steel holding down plate at lower end with self securing locknut at upper end, and align and level equipment using steel shims as necessary.

16. VIBRATION ISOLATION
Mount and connect all fans, and other similar equipment containing rotating and/or reciprocating parts to avoid excessive transmission of vibration and connect no part of any item of vibrating equipment to the building structure other than through a resilient connection. The vibration isolation system is to comprise a suitable isolating base and/or isolating mountings of characteristics matched to the machine concerned together with flexibly arranged and/or supported connections.

17. GUARDS
Provide guards to all moving parts including where no permanent means of access.

18. ELECTRIC MOTORS
Provide electric motor drives and starters for all fans, pumps, etc.

Unless otherwise specified to be screen protected, fan cooled, squirrel cage, super silent machines with ring or wick lubricated roller or ball bearings, or, where needed to meet the requirements in respect of noise, sleeve bearings, constructed to the dimensions of BS 2960 or 2048 as applicable, wound for the electricity supply available complete with all necessary supporting rails, brackets, bolts, etc. and a substantial terminal box arranged for not less than 20mm flexible conduit, fixed into position ready for electrical connection.

Generally the electricity supply will be three phase but check before placing orders. Base tender on three phase except as later specified.

Motor speeds are not to exceed 24.2 rev/s (1450 rpm) and the nominal continuous rating is not to be less than 10% or more than 20% greater than the maximum brake H.P. demand of the driven appliance and as given in BS 2613.

Provide to the Electrical Installer/Trade Contractor with 1 copy as directed, a schedule of motors listing type, number of phases, horse power, starting and running current and methods of starting.

19. MOTOR STARTERS
Provide for each electric motor a suitable starter of common manufacture made by the MTE Ltd, or other equal.

Except where otherwise specified, to be of the air break contractor type with facilities for the separate excitation of the operating coil by external connection to terminals with local push button control, two auxiliary contacts, in addition to any maintaining contact, one normally open and one
normally closed, equipped with integral on-load isolating switch having a separate pole for each phase way and a neutral link, with method of starting:

- Up to 5.6 kW (7.5 HP) - direct on line
- 5.6 to 11.2 kW (7.5 to 15 HP) - automatic star delta
- Over 11.2 kW (15 HP) - rotor resistance

Provide and set ambient temperature compensated overload protection device incorporating single phasing prevention and under voltage release. Dashpots, where supplied, to be filled with oil or silicone fluid to the manufacturers recommendations.

Electric motor starters to include steel dust proof cases with adequate labelled terminal for each connection and front cover label giving details of the motor controlled, and conduit standard for mounting singly adjacent to the motor. Where standards are impracticable or undesirable the starters are to be for wall mounting.

Provide the Electrical Installer, against signed receipt, all local starters for erection and electrical connection.

Where specified to be accommodated in control panels starters to be suitable for logical accommodation in the panel and as later specified. Starters accommodated in control panels or otherwise grouped together, are each to be equipped with one green 'Motor Run' lamp and one red 'Overload Tripped' lamp.

Where the motor starter is fixed at a distance of more than 1.8m from the motor arrange with the Electrical Installer to fix and connect a suitable 'Lock Off' isolator immediately adjacent to the motor.

**20. ELECTRICAL EQUIPMENT AND WIRING**

Provide, supply only or supply and erect only, electrical equipment and wiring as specified and provide details and co-operate with the electrical installer who will provide all other electrical equipment and wiring.

Provide equipment specified in a single casing or panel in a works fabricated and tested mild steel rolled section frame with mild steel plates to cover face, sides, back, top and bottom, except omit any panel, particularly bottom and rear, where total enclosure is given by adjoining structural surface. Arrange one panel, to access interior, hinged with lockable handle, others removable as needed for occasional access, stiffeners as needed to produce a stable construction and finished stoved enamel to approved colour and texture with stainless steel angle strips to cover all edges, or as specified or approved alternative construction, access and finish.

Lamps, push buttons, instruments, etc. to be suitably coloured, matched one with another, labelled as to function and connected with internal equipment by 1.0mm² minimum coloured PVC insulated wires with outgoing circuits to a labelled terminal strip at a point to suit external connections behind a 3mm mild steel plate to accept conduits or similar.
Provide panel distribution circuitry with HRC fuse for each power and control circuit and 25% spare and 'on load' rotary isolator interlocked with access door with contacts to break all panel 'line' connections, power and control back feeds, EXCEPT where panel isolation would cause a device connected to another panel to activate for which provide protective shields and warning label. Where the maximum current exceeds 30 amps panel circuitry to be rated to withstand a fault level of 15 MVA for one second by measures such as mounting fuses onto PVC taped and phase colour identified copper bus bars on 'Tufnol' supports.

Provide on each panel 25 volt switched socket outlet with double wound centre tapped transformer and 15 Watt woven wire protected hand lamp, 20 metres of tough rubber flexible cable and rubber plug.

Connect equipment to give 'fail safe' as reasonably possible with alarm circuitry to panel bell cancel push and warning light (not cancelled by push) with facility to connect to a remote alarm point.

Submit for approval panel face and interior arrangement drawings, power and control, line AND connection diagram to BS 3939 sequence left or right and top to bottom showing all electrical, pneumatic and hydraulic circuitry, both external to and within panels and equipment, giving types, capacities and sizes of cables, pipes, switches, contractors, fuses, etc. and terminal numbers mutually consistent between drawings. Provide one copy of each diagram under Perspex on inside of panel access door and with each set of 'as fitted' drawings.

Provide all wiring specified to the electrical specification.

21. CFC’s

No materials which contain CFC gases or use CFC gases in their manufacture are to be used. CFC gases as defined in the Montreal Protocol.

22. SAFETY HEALTH AND WELFARE

In carrying out the Works or Services under this Contract, the Contractor shall adopt safe methods of work in order to protect the Health of employees of the Contractor. Sub Contractors, employer and all other persons, including members of the public.

The Contractor shall review their Health and Safety Policy and Safe Working Procedures as often as necessary and in the light of changing legislation. In particular the Contractor shall comply with the requirements of the all pertaining Acts of Parliament and any subordinate legislation.

The Contractor shall allow for all costs incurred in complying with the Health and Safety legislation, and provide a copy of their Health and Safety Plan and Policy prior to commencement of works and develop and implement the Health and Safety Plan to completion of the works.
PART 2 PARTICULAR SPECIFICATION MECHANICAL SERVICES

1. LOCATION

The site is located in Karen Nairobi on Land Reference Number 1159/75/10

2. DESCRIPTION OF WORKS

Supply, install test and commission refrigeration, air-conditioning and mechanical ventilation systems for the facilities as indicated on drawings and described in the bills of quantities.

3. EXTENT OF MECHANICAL SERVICES

The work to be carried out under this part of the specification is to include the provision of mechanical services as listed below and as described in the relevant sections of this specification.

3.1 Mechanical extract ventilation system and sound attenuation.
3.2 Direct Expansion Cooling Systems
3.3 Cold rooms & Freezer rooms
3.4 Bio Safety cabinet ducting
3.5 Testing and commissioning of the engineering systems.
3.6 Operation and maintenance manuals and as installed drawings.

This list of items is provided for the convenience of tenders only and is not to be considered to replace in any way the requirements and intent of this specification all as later described.

4. NOISE

Take all reasonable precautions during the progress of the works to prevent or reduce inconvenience caused by noise to the occupiers of adjacent buildings and the general public.

Generators, compressors and other noisy plants are to be muffled at all times by means of silencers, screens and the like.

5. PROGRAMME REQUIREMENTS

The programme for the general erection of the works will be given in the Main Contractors Conditions and the Engineering Installation must be phased to suit the building programme.

6. BUILDERS WORK

Precisely locate all holes, chases and building work in connection with the Engineering Systems onto builders work drawings, making the allowance for the contract programme.

All holes in structural slabs and walls will need to be precisely located on builders work drawings at an early stage in the contract.
7. DUCTWORK

Provide true section ranges of airtight sheet steel ductwork as later specified fabricated from galvanised steel sheets with lock formed or riveted seams and stiffening all to the recommendations of the Heating and Ventilating Contractors Association specification DW 144 and addendum DW/TM1 except as specified.

End and offset centreline radii to equal at least one width of duct unless otherwise shown. Changes in section of duct to be tapered. Branches to be taken off with easy sweep bends at normal bend radii. Provide guide vanes at all positions later specified and wherever not possible to install at the radii specified.

Provide 75mm slip joints between all fixed points such as between grilles, bends and branches, except where flanged joints are installed. Make good all cut edges and other abrasions to the galvanising by painting with two coats of a suitable zinc based paint. Mount thermostats, etc. in ducts with screw fixed plate and gasket.

Provide flexible ducts only where specified or approved and of an approved make.

Treat for protection all ductwork subject to external atmosphere and/or high humidity conditions as specified. Where protection is not so specified submit quotation for such protection as needed.

Prepare and submit for acceptance detail shop ductwork fabrication drawings from measurement taken on site.

Fabricate and erect ductwork using an approved specialist. State name at time of tender. Submit as directed for approval any piece of ductworks at works.

8. SUPPORTS

Support ductwork at centres of not more than 2.5m on purpose made hangers, cantilever brackets etc. constructed of material not lighter than specified for angle joint flanges. Provide "Lindaptors" or equal clips to support ducts from exposed steelwork and in no circumstances drill steelwork without approval. Provide "Rawlbolts" or equal to support ducts from beam casings or roof slabs. Provide any needed steelwork to support ductwork at high level in plant rooms etc. with anti-vibration mountings required for filters, fans, air heater batteries, sound insulation, fire dampers etc.

9. FLEXIBLE CONNECTIONS

Provide flexible connections on the suction and discharge connections to all fans and in any duct crossing a building expansion joints made with best quality air tight sailcloth except for kitchen extract and similar high fire risk fans where connections to be made with approved flexible fireproof material.
10. ACCESS DOORS

Provide access doors in the suction and discharge branches of all fans, filters, heaters, coolers, humidifiers etc. and adjacent to all dampers on all duct runs at intervals of not less than 10 metres and wherever else specified to give generous access for inspection, cleaning and maintenance.

Hinge doors to ductwork framing and secure in closed position by approved type of fixing device to give airtight joint.

11. EXTERNAL LOUVRES

Provide, where later specified external louvers constructed from sheet steel not less than 2mm thick or as later specified in angle iron framing with 25mm wire mesh bird guard and blades arranged to prevent entry of driving rain, all galvanised after manufacture. Mount to wood frame provided by the main contractor.

12. PROVISION FOR TESTING

Provide for testing at suitable positions on the upstream and downstream side of each fan, heater, cooler, filter etc.
25mm diameter hole covered by test plug.

13. TEST AND COMMISSION

Test and commission as Code series A issued by the Chartered Institution of Building Services Engineers providing all design information that code requires.

14. BALANCING DAMPERS

Provide balancing dampers where specified and on all branches from main runs of ducting serving two or more grilles or diffusers of the multi-lead type except that butterfly dampers with the spindle parallel to the long side may be used in ducts having a long side not exceeding 450mm and short side not exceeding 300mm provided there is a sufficient length of straight duct for leak in open position. Blades to be aerofoil section in air streams exceeding 10m/s velocity, may be flat at lower velocity.

Provide with each damper quadrant arm and operation lever mechanism with clamping device with oiling nipples to all bearings, and engrave or otherwise permanently mark quadrant with scale showing correct setting for design conditions, full fresh air, where applicable and closed.

12. DAMPER APPROVAL

Submit for approval before manufacture detail drawings of all damper types.
13. CENTRIFUGAL FANS

Impellers to be of the multi-vaned type with forward curved blades or of the Centrifugal fans to comprise heavy steel plate housing stiffened against drumming having flanged outlet for all sizes and flanged inlet spigot where the inlet diameter exceeds 600mm. Arrange to allow for access to impeller with impeller bearings supported from both sides of the fan casing by bearer bars, unless otherwise specified with access door scroll casing to facilitate inspection and cleaning and drain pad and plug at the lowest point.

Non overloading backward curved type, or as specified, with vee belt drive enclosed in heavy gauge wire mesh guard galvanised after manufacture and with fan motor mounted onto adjustable slides rails.

14. AXIAL FLOW FANS

Axial flow fans to comprise heavy steel plate housing stiffened against drumming and lined with "Silence" or other suitable acoustic treatment with flanged inlet and outlet connections, the impeller direct driven from an electric motor supported resiliently and axially from the fan casing, with casing access door to facilitate cleaning and inspection and drain pad and plug at lowest point in casing and with grease nipples or oil filler caps extended through the casing for external access.

15. AIR GRILLES

Provide in the positions and of the type, sizes and capacities detailed on the drawings, air grilles to introduce into or to exhaust air from the ventilated spaces each complete with adjustable directional control and multi-blade opposed blade air volume control damper and all necessary ancillary equipment for easy adjustment and cleaning.

Except where to be fitted directly to ductwork, air grilles to be seated on a sponge rubber or equal gasket and fixed to timber or similar frames and grounds provided by the Main Contractor.

Air grilles to be made from mild steel or aluminium and are to be finished with cellulose enamel of a colour to be approved and applied to both the grille face and to all visible screw heads and made as later specified, or where not so specified by Waterloo Limited.

16. ACOUSTIC ATTENUATION

Take all necessary measures, including where necessary the provision of acoustic attenuation equipment, so that the total sound pressure levels in both the ventilated spaces and all other areas do not exceed the values of noise criteria curve NR 35, or as otherwise later specified, when measured by a sound spectrometer at a height of 1.5 metres above finished floor level during a still night or other suitable time when the plant is running and all other sounds are at their lowest level.

Where acoustic attenuation equipment is later specified, this will be adequate to meet the specified requirements with the information currently available, but check the actual acoustic characteristics of the fans, heaters, ductwork etc. as installed and provide as necessary to meet the specified sound level requirements. Submit fully certified sound pressure levels over the range of frequencies from 63 Hz to 8kHz to demonstrate attenuation has been provided as specified.
Appreciate that poorly executed ductwork can lead to increased sound pressure levels. Provide any additional acoustic treatment needed arising from this and similar matters.

The acoustic attenuation equipment is to comprise the necessary non-flammable and non-hygroscopic sound absorbing material applied in suitable steel casings with flanged ends for connecting to ductwork or as an acoustic duct linking, all generally as later specified. In all cases the free cross-sectional area of the ductwork is to be maintained to the sizes specified.

17. AIR CONDITIONING COOLING SYSTEM

Provide and install a split system direct expansion cooling systems to serve the areas as indicated on the drawings and equipment schedules. The interconnecting refrigerant pipework is to be sized in accordance with the manufacturer’s recommendations and installed in refrigerant grade copper. The pipework is to be supported on galvanised cable tray and insulated with class O Armaflex insulation. Run condensate to waste on plastic pipework as indicted.

18. FILTER BOX

Construct filter box as follows:
18.1 Chassis: Construct chassis of galvanized steel with flanged edges.
18.2 Cabinet: Construct of 18-ga steel removable panels, 16-ga front.
18.3 Filters: filter section to have access doors for removal of filters and filter holding frames (in steel) for flat filter orientation. Filters shall be framed and as specified in the bills of quantities.
18.4 Dampers: damper section shall have access door for accessing damper and shall be housed in the filter box.
18.5 Connections: Provide flexible connections from filter box frame to fan frame
18.6 Motors: Provide motors with integral thermal overload protection.
PART 3: PARTICULAR SPECIFICATIONS COLD ROOMS

1.0 General

1.1 Walk-in cold room and freezer rooms to be constructed of prefabricated insulated panels to allow convenient and accurate field assembly and future enlargement by the addition of further panels. Panel sizes should be such to allow entry to proposed area without cutting or adjustment where possible.

1.2 Construction of wall, ceiling and floor panels should be such to meet European Hygiene Food Hygiene Standards.

1.3 Panels should be fire resistant Class 1.

1.4 The Refrigeration equipment should be ‘CE’ approved and appliance tested at point of construction or after installation.

2.0 Panel Fabrication

2.1 Standard panels will be of suitable sizes to make up room of dimensions to meet applicable site requirements and will be interchangeable at a later date. Corner panels will be formed one piece for greater strength and ease of installation. Panels shall be of foamed-in-place polyurethane, which will be blown using, CFC/HCFC agent sandwiched between galvanised steel substrate 0.6mm thick and the outer surface will be white polyester, which shall be approved for use in contact with food by an European accredited institution. The polyester thickness will be 25mm and with a smooth finish for ease of cleaning. Gloss gardener 60° 50…60. Edges of all panels including wall/wall, wall/corners, wall/ceiling, wall/floor shall be male, female jointed to give good insulation factors and be equipped with cam action locking devices to all sections, locking devises to be foamed-in-place at time of fabrication.

3.0 Floor construction

3.1 Floor panels to be same as wall panels with the addition of marine plywood surface coated with a non-slip glass fibre resin suitable for pedestrian traffic and trolleys with rubber wheels. Floor panels to be capable of supporting 250kg per 0.145square meter evenly distributed when panels are fully supported. Optional ¾ aluminium checker plate may be requested. Rooms can be supplied without a floor i.e. for trolley operation on chiller applications only. Plinth and fixing kit can be supplied.

4.0 Insulation Factors

4.1. Each panel will be completely filled with rigid CFC/HCFC Free polyurethane foam to a density of no less than 40kg/m' and having a thermal conductivity of 0.28 w/m2 k. The panels will also have:
   A. Coefficient of thermal conductivity of gn = 0.024 w/mk
   B. Coefficient of thermal expansion n.70 x 10-6/k
   C. Water vapour transmission rate (0,1…1.2) x 10-12kg m/m2 sPa
   D. Water absorbency in 100% relative humidity max. 0.2 volume%
Overall thickness of each panel 80mm. Optional of 100mm on larger walk-in room projects above 40 cubic meters.

4.2. Fire/Flammability rating of panels.
A. Rated euroclass ‘E’ in reaction to fire.
C. Surface spread of flame: BS 467: part 7 class 1.

5.0 Panel locking assemblies

5.1. Assembly of cold room / freezer rooms shall be accomplished by eccentric action cam lock panel fasteners. These shall be foamed in place and activated by hex key wrench provided with each cold room. Access holes to be covered with push-in cap plugs. Access holes to be on interior of room to allow assembly of room from inside. Access port for cooling unit may be on the outside front fascia, but covered with plug.

6.0. Sealing of panels.

6.1. Although effective air seal is made by male/female joints. All butted joints on exterior where visible and all interior joints should be sealed by silicon mastic provided with the room, to ensure no debris or dirt can accumulate at any time.

7.0. Shelving

7.1. The room should be equipped with four (4) tier-cantilevered shelving to either two (2) or three (3) walls. Each shelf should be slatted to allow good airflow around the product being stored. The shelves should be capable of holding an evenly spread 70kg load. Shelving will be manufactured from galvanised steel coated with food safe polyester finish and can be easily cleaned.

8.0. Doors

8.1. Each cold room/ freezer room/mortuary shall be equipped with one (1) semi-rebated hinged door complete with heavy duty hinges and lockable door handle, fitted with a luminous emergency entrapment release, which will override the locking mechanism. Door gaskets will be of a pullout push-in type for easy field replacement. Door surround and threshold will be in stainless steel Grade 304. For freezer application the door surround will be fitted with heater to keep door free at low temperatures. Two standard sizes relating to room width will be supplied the larger giving a clear opening of 700 X 1840mm. The smaller 545 X 1840mm. The door blade will be of the same finish as the room panels supplied. Door sweeper gaskets can be supplied for floorless room applications.

9.0. Refrigeration Equipment

9.1. Where applicable and where there is sufficient ventilation, the room shall be fitted with an on-board air cooled refrigeration system capable of hold foodstuffs at the required
temperature i.e. Chilled foods: +2 to +10°C (Adjustable), Fresh meats: -2 to +5°C (adjustable), Frozen foods: -18 to −2°C. The unit will be manufactured to take up the full length of a panel and take condenser air from the coolest area i.e. Bottom of unit. The condenser will be fitted with a filter, which can be removed for easy cleaning. The unit will be selected to operate in ambient temperatures up to +3°C and optional tropical version if required. A control panel will be incorporated to include a digital temperature display that will be easily adjusted to the required temperature instrument will also have a high/low temperature alarm pre-set to be both audible and visual should the room temperature go beyond pre-set limits. The refrigeration system should use environmentally friendly refrigerants. This unit will also be supplied with bulkhead light and light on/off switch. The freezer model will be fitted with a pressure equalising valve. To reduce operating costs the unit will defrost using a reverse cycle hot gas system.

9.2. Where there is insufficient ventilation a heat disposal system will be offered. This will take condenser heat by a means of a water heat transfer system to an outside or cooler area. The condenser section will be simple to install and low in noise, so as not to create a nuisance or attract complaints via environmental health officers. The unit shall have a rating of no more than 40 DBA at 1 meter. The interconnecting pipe work will be non-kink neoprene hose and the system filled with a water glycol solution. All other components remain as air cooled version.

10.0. Room installation

10.1. The site will provide a clear level dry surface and offer clear access and unloading facilities where necessary. It is the main contractors responsibility to dispose of packing material. Where and if necessary forklift hire will be at the cost of the main contractor.

10.2. Full health and safety documentation, method statements to be undertaken and contractors to sufficient product liability insurance.

11.0. Options

11.1 PVC strip curtains supplied where necessary
11.2 Exterior ramps
11.3 Door kick plates
SECTION IV

STANDARD FORMS

List of Standard Forms

(i) Form of Invitation for Tenders
(ii) Form of Tender
(iii) Letter of Acceptance
(iv) Form of Agreement
(v) Form of Tender Security
(vi) Performance Bank Guarantee
(vii) Performance Bond
(viii) Qualification Information
(ix) Tender Questionnaire
(x) Confidential Business Questionnaire
(xi) Request for Review Form
I. FORM OF INVITATION FOR TENDERS
_______________________[date]

To: ____________________________________ [name of Contractor]
______________________________[address]
____________________________________

Dear Sirs:

Reference:__________________________________________________[Contract Name]

You have been prequalified to tender for the above project.

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

A complete set of tender documents may be purchased by you from ____
________________________________________________
[mailing address, cable/telex/facsimile numbers].

Upon payment of a non-refundable fee of Kshs __________________________

All tenders must be accompanied by ________________number of copies of the same and a tender security in the form and amount specified in the tendering documents, and must be delivered to __________________________________________________________

[address and location]

at or before _______________________(time and date). Tenders will be opened immediately thereafter, in the presence of tenderers’ representatives who choose to attend.

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

Yours faithfully,

_________________________________________________ Authorised Signature
_________________________________________________ Name and Title
II. FORM OF TENDER

TO: __________________________ [Name of Employer] ____________ [Date]

________________________ [Name of Contract]

Dear Sir,

1. In accordance with the Conditions of Contract, Specifications and Bills of Quantities/Schedule of Rates for the execution of the above named Works, we, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of Kshs.______________________________ [Amount in figures] Kenya Shillings________________________________________________________________ ________________ [Amount in words]

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Employer’s Representative’s notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Conditions of Contract.

3. We agree to abide by this tender until ________________ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.

4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.

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

Dated this ____________________ day of _______20________________

Signature __________________ in the capacity of __________________

duly authorized to sign tenders for and on behalf of __________________

_____________________________________________ [Name of Contractor]
of __________________ [Address of Contractor]

Witness; Name______________________________________

Address____________________________________________

Signature___________________________________________

Date______________________________________________
III. LETTER OF NOTIFICATION OF AWARD

Address of Procuring Entity

To:_____________________

RE: Tender No. _________________

Tender Name _________________

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

1. Please acknowledge receipt of this letter of notification signifying your acceptance.

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

3. You may contact the officer(s) whose particulars appear below on the subject matter of this letter of notification of award.

(FULL PARTICULARS) ______________________________

_____________________________________________

SIGNED FOR ACCOUNTING OFFICER
IV. FORM OF AGREEMENT

THIS AGREEMENT, made the ___________ day of ________ 20 ______

between________________________________ of [or whose registered office is situated at] ____________________________________________ (hereinafter called “the Employer”) of the one part

AND

________________________________________________________of [or whose registered office is situated at] ____________________________________________ (hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

________________________________________________________________________

(name and identification number of Contract ) (hereinafter called “the Works”) located at______________________________[Place/location of the Works] and the Employer has accepted the tender submitted by the Contractor for the execution and completion of such Works and the remedying of any defects therein for the Contract Price of Kshs___________________________[Amount in figures], Kenya Shillings_____________________________________________[Amount in words].

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.

   (i) Letter of Acceptance

   (ii) Form of Tender

   (iii) Conditions of Contract Part I

   (iv) Conditions of Contract Part II and Appendix to Conditions of Contract

   (v) Specifications

   (vi) Drawings

   (vii) Priced Bills of Quantities/Priced Schedule of Rates[whichever is applicable]

3. In consideration of the payments to be made by Kenyatta University to the Contractor as hereinafter mentioned, the Contractor hereby covenants with Kenyatta University to execute and
complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.

4. Kenyatta University hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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

The common Seal of ______________________________

Was hereunto affixed in the presence of ______________________________

Signed Sealed, and Delivered by the said ______________________________

Binding Signature of Kenyatta University ______________________________

Binding Signature of Contractor ______________________________

In the presence of (i) Name_______________________________________

Address_____________________________________

Signature___________________________________

[ii] Name_____________________________________

Address_____________________________________

Signature___________________________________
V. FORM OF TENDER SECURITY

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

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

THE CONDITIONS of this obligation are:

1. If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers

   Or

2. If the tenderer, having been notified of the acceptance of his tender by the Employer during the period of tender validity:
   
   (a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, if required; or
   
   (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;

We undertake to pay to Kenyatta University up to the above amount upon receipt of his first written demand, without Kenyatta University having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

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

___________________________  ______________________________
[signature of the Bank]  [date]

___________________________  ______________________________
[witness]  [seal]
VI. PERFORMANCE BANK GUARANTEE

To: _________________________(Name of Employer) _________(Date)__________(Address of Employer)

Dear Sir,

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

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

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

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Kshs. ________________ (amount of Guarantee in figures) Kenya Shillings__________________________________________ (amount of Guarantee in words), and we undertake to pay you, upon your first written demand and without civil or argument, any sum or sums within the limits of Kenya Shillings __________________________ (amount of Guarantee in words) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

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

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

SIGNATURE AND SEAL OF THE GUARANTOR ___________________

Name of Bank ________________________________

Address ________________________________

Date ________________________________
VII. PERFORMANCE BOND

By this Bond, We____________________________
of (or whose registered office is situated at]______________________________________as Principal
(hereinafter called “the Contractor”) and
____________________________________________________
_of [or whose registered office is situated at]___________________________________________ as Surety (hereinafter called “the Surety”), are held and firmly bound unto_____________________________________of [or whose registered office is situated at]______________________________
as Obligee (hereinafter called “the Employer”) in the amount of Kshs.______________________________ [amount of Bond in figures] Kenya Shillings____________________________________________________________ [amount of Bond in words], for the payment of which sum well and truly, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a Contract with the Employer dated the ________________ day of ______________ 20 ________________ for the execution of____________________________________________ [name of Contract] in accordance with the Contract documents, Specifications and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer’s obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) complete the Contract in accordance with its terms and conditions; or

(2) obtain a tender or tenders from qualified tenderers for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive tenderer, arrange for a Contract between such tenderer and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof.
The term “Balance of the Contract Price”, as used in this paragraph, shall mean the total amount payable by the Employer to the Contractor under the Contract, less the amount properly paid by the Employer to the Contractor; or

(3) Pay the Employer the amount required by the Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of issuance of the Certificate of Completion.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this ______________________________ day of ______________________________ 20__________

SIGNED ON _________________________ SIGNED ON _____________________

On behalf of ____________________________ On behalf of ____________________________

[ ] [ ]

By ___________________________________ By _____________________________

In the capacity of _____________________ In the capacity of ______________

In the presence of; Name _______________ In the presence of; Name __________

Address____________ Address____

Signature__________ Signature____

Date____________ Date__________
VIII. QUALIFICATION INFORMATION

1. Individual Tenderers or Individual Members of Joint Ventures

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

Place of registration: ______________________________

Principal place of business ______________________________

Power of attorney of signatory of tender ________________

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Currency</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Project name</th>
<th>Name of client and contact person</th>
<th>Type of work performed and year of Completion</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.4 Major items of Contractor’s Equipment proposed for carrying out the Works. List all information requested below.

<table>
<thead>
<tr>
<th>Item of Equipment</th>
<th>Description, Make and age (years)</th>
<th>Condition (new, good, poor) and number available</th>
<th>Owned, leased (from whom?), or to be purchased (from whom?)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Years of experience (general)</th>
<th>Years of experience in proposed position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(etc.)

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

__________________________________________

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

____________________________________________________________

____________________________________________________________

____________________________________________________________

1.8 Name, address and telephone, telex and facsimile numbers of banks that may provide reference if contacted by the Employer.

____________________________________________________________

____________________________________________________________

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

____________________________________________________________

____________________________________________________________

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

2 Joint Ventures

2.0 The information listed in 1.1 – 2.0 above shall be provided for each partner of the joint venture.

2.1 The information required in 1.11 above shall be provided for the joint venture.

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

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

a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;

b) one of the partners will be nominated as being in charge, authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture; and

c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.
IX. TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of tenderer........................................................................................................

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

3. Telephone number (s) of tenderer......................................................................................

4. Telex address of tenderer.....................................................................................................

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

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

...........................................................................................................................................
...........................................................................................................................................

________________________

Signature of Tenderer

Make copy and deliver to:______________________(Name of Employer)
X. CONFIDENTIAL BUSINESS QUESTIONNAIRE

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

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

Part 1 – General

Business Name .............................................................

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

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

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

Nature of Business...........................................................

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

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

Name of your bankers..........................................................

Branch.................................................................

Part 2 (a) – Sole Proprietor

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

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

*Citizenship details ..............................................................
Part 2 (b) – Partnership

Give details of partners as follows:

<table>
<thead>
<tr>
<th>Name in full</th>
<th>Nationality</th>
<th>Citizenship Details</th>
<th>Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 in full  Nationality  Citizenship Details  Shares.
1               |             |                     |        |
2               |             |                     |        |
3               |             |                     |        |

Part 2(d) – Interest in the Firm:

Is there any person / persons in ………… ……… (Name of Employer) who has interest in this firm? Yes/No…………………… (Delete as necessary)

I certify that the information given above is correct.

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

• Attach proof of citizenship
FORM RB 1

REPUBLIC OF KENYA
PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO…………….OF………….20……...

BETWEEN
…………………………………………….APPLICANT
AND
…………………………………………….RESPONDENT
(Procuring Entity)

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

REQUEST FOR REVIEW

I/We……………………………,the above named Applicant(s),
of ad
dress: Physical
address…………….Fax
No......Tel. No......Email …………, hereby request the
Publi ic 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…

FOR OFFICIAL USE ONLY

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

SIGNED
Board Secretary
SECTION V

APPENDIX I: BILL OF QUANTITIES/ SCHEDULE OF RATES
## PROPOSED MAMA NGINA UNIVERSITY COLLEGE

## BILL OF QUANTITIES FOR MECHANICAL SERVICES

### LECTURE THEATRE AIR CONDITIONING

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QTY</th>
<th>RATE KSHS.</th>
<th>TOTAL KSHS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRELIMINARIES AND GENERAL CONDITIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Provide bond as stated in the published conditions of sub-contract.</td>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Provide insurance as required in the sub contract conditions.</td>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Preparation of working drawings “As installed” record drawings.</td>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Printing of paper copies of item C above.</td>
<td>Sum</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL CARRIED FORWARD TO MAIN SUMMARY PAGE
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QTY</th>
<th>RATE KSHS.</th>
<th>TOTAL KSHS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AIR CONDITIONING AND MECHANICAL VENTILATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td><strong>Indoor Unit</strong></td>
<td>NO</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variable Refrigerant Flow Ceiling mounted cassettes type indoor unit with a Cooling capacity of 3.6 kW (12,000 Btu/hr) and to be supplied complete with thermostat to control room temperature, inbuilt condensate drain pump, auto restart function, wired remote controller and with a sound pressure level of 35 db (A). The indoor units to be mounted in the ceiling with prefabricated hanging supports comprising of hanging bolts, nuts, spring washer and plate washer on the position shown on the approved working drawings. The indoor unit to be as 'Toshiba RAV Series indoor unit' or approved equivalent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td><strong>Outdoor Unit</strong></td>
<td>NO</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ground mounted inverter controlled outdoor unit connected to 1 No. ceiling cassettes indoor units. It shall have a nominal cooling load of 10.8KW (36,800 Btu/hr) and capacity control in the range of 10 - 130% according to the indoor cooling load. The unit will operate with R410A refrigerant or any other non-ozone depleting refrigerant. It shall be provided with anchoring accessories including rawl bolts complete with anti-vibration rubber mountings. To be complete with 1No. wired central remote controller and the control cable. The outdoor unit to be as 'Toshiba rav Series outdoor unit or approved equivalent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>TOTAL CARRIED FORWARD TO COLLECTION PAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>DESCRIPTION</td>
<td>UNIT</td>
<td>QTY</td>
<td>RATE</td>
<td>TOTAL</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>------</td>
<td>-----</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>2</td>
<td>Refrigeration Pipework</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Refrigeration copper pipework complete with amaflex insulation and associated pipe fittings</td>
<td>LM</td>
<td>20</td>
<td>20</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>i) 9.5mm copper pipe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ii) 12.7mm copper pipe</td>
<td>LM</td>
<td>21</td>
<td>21</td>
<td>441</td>
</tr>
<tr>
<td></td>
<td>iii) 15.9mm copper pipe</td>
<td>LM</td>
<td>17</td>
<td>17</td>
<td>289</td>
</tr>
<tr>
<td></td>
<td>iv) 19.05mm copper pipe</td>
<td>LM</td>
<td>17</td>
<td>17</td>
<td>289</td>
</tr>
<tr>
<td>B</td>
<td>Refrigerant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allow R410A refrigerant or any other non ozone depleting refrigerant for charging the Air conditioning system comprising of 1No. outdoor unit connected to indoor units as described above.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Drain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 insulated PVC condensate drainage pipework class “D” including pipe fittings: bends, reducers, tees and sockets.</td>
<td>LM</td>
<td>12</td>
<td>12</td>
<td>144</td>
</tr>
<tr>
<td>D</td>
<td>Outdoor Unit Mounting Platform</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mounting bracket/platform 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.</td>
<td>NO</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Voltage Stabilizer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three phase Power stabilization unit as Solatek or equal and approved.</td>
<td>NO</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Y-Branches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A pair of Y-branches for gas and liquid lines for indoor units connections.</td>
<td>NO</td>
<td>15</td>
<td>15</td>
<td>225</td>
</tr>
<tr>
<td>G</td>
<td>Electrical Works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allow for associated electrical works including but not limited to conduit and wiring from local isolators provided by others to the VRF outdoor units, indoor units and remote controller.</td>
<td>NO</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>Testing and Commissioning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allow for testing and commissioning of the entire air conditioning installations to the satisfaction of the Engineer.</td>
<td>NO</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>TOTAL CARRIED FORWARD TO COLLECTION PAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>DESCRIPTION</td>
<td>AMOUNT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>TOTAL CARRIED BROUGHT FROM 1-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>TOTAL CARRIED BROUGHT FROM 2-I</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>TOTAL CARRIED FORWARD TO SUMMARY PAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## PROPOSED MAMA NGINA UNIVERSITY COLLEGE

### BILL OF QUANTITIES FOR MECHANICAL SERVICES

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate (Kshs)</th>
<th>Amount (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00</td>
<td><strong>READING AREA AIR CONDITIONING</strong>&lt;br&gt;The Auditorium is to be Air-Conditioned to attain a room temperature 21°C ± 1°C Relative humidity 50% ± 5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Supply and install Air Handling Unit (AHU), single packed(self contained) air cooled air conditioner capable of a cooling load of 45KW, and a supply air flow rate of 5m$^3$/s. There shall be re-circulation on this system. The unit shall be constructed for horizontal outlet ducted air distribution and shall be complete with:&lt;br&gt;a) Supply fan(s) capable of 5m$^3$/s against a 550N/m$^2$ external system pressure drop with variable air volume (VAV).&lt;br&gt;b) Direct expansion cooling coil with copper tubes and Aluminium fans.&lt;br&gt;c) Humidifier and Dehumidifier&lt;br&gt;d) Interconnecting refrigeration pipework&lt;br&gt;e) washable filters of 20micron particles with 95% efficiency&lt;br&gt;f) High and low pressure cut-outs&lt;br&gt;g) Service access valves&lt;br&gt;h) Anti-vibration mountings&lt;br&gt;i) Controls and programmable digital control panel unit&lt;br&gt;j) R410A or any other non-ozone depleting refrigerant&lt;br&gt;The unit to be as factory assembled “York” or equal and approved.</td>
<td>1</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td><strong>AIR SUPPLY SYSTEM</strong>&lt;br&gt;Ductwork&lt;br&gt;Galvanized mild steel ductwork 1.0mm (20swg) thick, complete with bends, transformation pieces, offsets, joints, branches, gaskets, supports, sleeves, stiffeners, splitters, turning vanes, test holes, access doors and any other accessories necessary for the complete laying of the ductwork.</td>
<td>120</td>
<td>SM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Transformation Pieces&lt;br&gt;Allow for various sizes of transformation pieces in Galvanised mild steel thickness 1.5mm as indicated on the contract drawings and necessary for complete ductwork installation.</td>
<td>1</td>
<td>Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td><strong>Volume Control Dampers</strong>&lt;br&gt;Variable volume control dampers suitable for 800x800mm duct</td>
<td>25</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td><strong>Supply Air Diffusers with damper</strong>&lt;br&gt;Rectangular Louvre faced grille with damper of 400 x 400mm wide capable of supplying 0.195m$^3$/s sound pressure levels less than NR 25 at 4.5m from the outlet. The diffuser shall have an approximate throw of 4.0m for terminal velocities of 2.8m/s respectively.</td>
<td>36</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td><strong>Supply Silencer</strong>&lt;br&gt;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, bore size 800mm. As type “B WOODS” cylindrical silencer or equal and approved.</td>
<td>1</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Total carried forward to collection page</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Qty</td>
<td>Unit</td>
<td>Rate (Kshs)</td>
<td>Amount (Kshs)</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>-----</td>
<td>------</td>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td>5.00</td>
<td>Thermal Insulation</td>
<td>240</td>
<td>SM</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duct Work Painting</td>
<td>100</td>
<td>SM</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>Acoustic Insulation</td>
<td>68</td>
<td>SM</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>Cladding</td>
<td>68</td>
<td>SM</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Flexible Connector</td>
<td>1</td>
<td>Set</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Room Thermostat</td>
<td>4</td>
<td>No</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total carried forward to collection page</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Qty</td>
<td>Unit</td>
<td>Rate (Kshs)</td>
<td>Amount (Kshs)</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----</td>
<td>------</td>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td>A</td>
<td>Galvanised mild steel ductwork 20 SWG, 1.0mm thick, complete with joints,</td>
<td>80</td>
<td>SM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bracing, gaskets, supports, sleeves, stiffness, splitters, training vanes,</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>test holes, access doors, and any other necessaries necessary for the</td>
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<td></td>
<td>complete laying of the ductwork.</td>
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<td>B</td>
<td>Allow for various sizes of transformation pieces in Galvanised mild steel</td>
<td>1</td>
<td>Item</td>
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<tr>
<td></td>
<td>thickness 1.0mm as indicated on the contract drawings and necessary for</td>
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<td></td>
<td>complete ductwork installation.</td>
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<tr>
<td>C</td>
<td>Variable volume control dampers suitable for 800 x 800mm duct</td>
<td>32</td>
<td>No</td>
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<tr>
<td>D</td>
<td>Allow for painting (2No coats) of the ductwork internally and externally</td>
<td>100</td>
<td>SM</td>
<td></td>
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<tr>
<td></td>
<td>with suitable matt black paint.</td>
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<tr>
<td>E</td>
<td>Allow for the lining of the ductwork with a 25mm thick flame attenuated</td>
<td>40</td>
<td>SM</td>
<td></td>
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<tr>
<td></td>
<td>fiber glass, bonded with thermal setting frame. The inside lining to be</td>
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<td></td>
<td>done on sections of ductwork as will be pointed out by the engineer on</td>
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<td></td>
<td>site and shall act as the acoustic insulation.</td>
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<tr>
<td>F</td>
<td>Allow for cladding of exposed ductwork with SWG 24 aluminium sheet.</td>
<td>75</td>
<td>SM</td>
<td></td>
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<tr>
<td>G</td>
<td>Cylindrical cased axial fan capable of extracting 4.8m³/s of air against</td>
<td>2</td>
<td>No</td>
<td></td>
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<tr>
<td></td>
<td>a static pressure of 500N/m². The fan to come complete with mounting</td>
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<tr>
<td></td>
<td>brackets, anti vibration mountings and flexible connector. Fan to be as</td>
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<td></td>
<td>&quot;WOODS&quot; Model Series or equal and approved.</td>
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<tr>
<td>H</td>
<td>A splash proof fan control panel complete with operational switches shall</td>
<td>2</td>
<td>No</td>
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<tr>
<td></td>
<td>be installed in a room remote from the fan. It shall incorporate isolator,</td>
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<td></td>
<td>contactors, phase failure relay, overheat safety controls and fuses and</td>
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<td></td>
<td>pilot lamps to enable operating conditions to be checked. The panel shall</td>
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<td></td>
<td>be cut of mild steel and anodized after manufacture.</td>
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<td></td>
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</tr>
<tr>
<td>I</td>
<td>Circular silencer casing constructed from cold formed pre-galvanized</td>
<td>2</td>
<td>No</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>sheet steel and absorbent material of acoustic grade resin bonded mineral</td>
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<td></td>
<td>fibre with erosion resistant lining. The silencer shall match the flow</td>
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<td></td>
<td>capacity of the extract fan To be as woods or equal and approved.</td>
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<tr>
<td>J</td>
<td>The flexible connections shall be rubber bellows or neoprene and not</td>
<td>2</td>
<td>Set</td>
<td></td>
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<tr>
<td></td>
<td>canvas to isolate vibrations from the air conditioning unit or fans from</td>
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<tr>
<td></td>
<td>the inter-connecting ductwork.</td>
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<tr>
<td>K</td>
<td>Neoprene mounts for isolation of the fan’s vibration from the building</td>
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<td>Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>Structure.</td>
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Total carried forward to collection page
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<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rate (Kshs)</th>
<th>Amount (Kshs)</th>
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<tbody>
<tr>
<td>A</td>
<td>Extract Air grilles with dampers</td>
<td>28</td>
<td>No</td>
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<tr>
<td></td>
<td>Rectangular ceiling mounted Louvre faced grille/register of size 300x400mm wide capable of extracting 0.231m³/s and having less than 17pa pressure drop. To be as flowline grilles or equal and approved.</td>
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<tr>
<td>B</td>
<td>Electrical works</td>
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<td>Item</td>
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<tr>
<td></td>
<td>Allow for electrical works including wiring and fitting from the local isolator provided by others within 2 metres on the roof slab to the packaged air conditioning units. It shall include a push and pull safety switch near the air conditioning machine on the roof for isolation during maintenance.</td>
<td></td>
<td></td>
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<tr>
<td>C</td>
<td>Balancing of the Systems</td>
<td>1</td>
<td>Item</td>
<td></td>
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<tr>
<td></td>
<td>The systems shall be balanced such that the air conditioned spaces shall be balanced as per the design flow rates indicated in the drawings. It will be the onus of the tenderer to make sure that the inflows are adjusted to meet these requirements.</td>
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<td>D</td>
<td>Total carried forward to collection page</td>
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<td>Qty</td>
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<td>Rate (Kshs)</td>
<td>Amount (Kshs)</td>
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<tr>
<td>8</td>
<td><strong>FINAL AS BUILT DRAWINGS &amp; TRAINING</strong></td>
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<td></td>
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<tr>
<td>A</td>
<td>As-built Drawings and Maintenance Manuals</td>
<td></td>
<td>Item</td>
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<td></td>
<td>Allow for preparation of as-built drawings and maintenance manuals. All these</td>
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<td></td>
<td>will be handed to project Engineer in three hard copies and soft copy in</td>
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<td></td>
<td>8Gb flash disk and compact disk.</td>
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<tr>
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<td>1 No. CD soft copy of drawings in AutoCAD 2019</td>
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<td>Item</td>
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<td>C</td>
<td>3 No. A1 Sets Blue Prints</td>
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<td>Item</td>
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<tr>
<td>D</td>
<td>Provide 1 No. complete set of Original Operation &amp; Maintenance Manuals</td>
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<td></td>
<td>for all equipment supplied under Plumbing, Drainage and Fire Fighting</td>
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<tr>
<td></td>
<td>Installations Works.</td>
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<tr>
<td>E</td>
<td>Train the users of the above installations on the operation of all the</td>
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<td>Item</td>
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<tr>
<td></td>
<td>above installations</td>
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<tr>
<td>F</td>
<td>Provide a Sum of two hundred thousand (Kshs 200,000) for Project Engineer</td>
<td></td>
<td>SUM</td>
<td>200,000.00</td>
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<td>Supervision for the entire Mechanical works installations in this contract.</td>
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<td>G</td>
<td>Testing and Commissioning</td>
<td></td>
<td>Item</td>
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<td></td>
<td>Allow for testing and commissioning of the air conditioning</td>
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<td></td>
<td>installations to the satisfaction of the Engineer.</td>
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<td>H</td>
<td>Total carried forward to collection page</td>
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<td>Item</td>
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<td>Amount (KShs)</td>
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<td>A</td>
<td>Total brought forward from 4G</td>
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<td>B</td>
<td>Total brought forward from 5G</td>
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<td>C</td>
<td>Total brought forward from 6L</td>
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<td>D</td>
<td>Total brought forward from 7D</td>
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<td>E</td>
<td>Total brought forward from 8H</td>
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<tr>
<td>F</td>
<td>TOTAL FOR ONE UNIT (Total Estimate for Theatre AHU)</td>
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## PROPOSED MAMA NGINA UNIVERSITY COLLEGE

### GRAND SUMMARY PAGE - MECHANICAL SERVICES

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>AMOUNT KSHS.</th>
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<tbody>
<tr>
<td>1</td>
<td>PRELIMINARIES</td>
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<td>2</td>
<td>CYBER AIR-CONDITIONING 3C</td>
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<td>3</td>
<td>THEATRE AIR HANDLING UNIT 9F</td>
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<td>4</td>
<td>CONTINGENCY SUM(10%)</td>
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**SUBTOTAL**

ADD 16% VAT **INCLUSIVE**

**TOTAL CARRIED TO FORM OF TENDER**

Total in words:  

Name of Contractor:  

Address:  

Telephone:  

Pin No.  Vat Reg. No.  

Signature:  

Official Stamp/Date:  